205807

FIELD OVERSIGHT SUMMARY REPORT
ACS NPL SITE
GRIFFITH, INDIANA
February 6, 1997 - March 28, 1997

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USEPA/ARCS V
BVSPC Field Oversight Summary

Reporting Period: February 6, 1997 - March 28, 1997 BVSPC Project No. 71670
Site Name/Location: ACS, Griffith, IN Hours Worked: 283
USEPA Work Assignment Manager: Sheri Bianchin
Project Coordinator: Steve Mrkvicka

Personnel Summary Affiliation	No. of Personnel	Responsibility
John Gandy, Foster Wheeler Environmental Corp., Columbus, OH	1	Barrier Wall Construction Quality Assurance & Quality Control
Horizontal Technologies, Inc., Lake Alfred, FL (HTI)	10	Installation of Barrier Wall Extraction System (BWES) and benching and pre-excavation activities associated with BWES
Stearns Drilling Company Grand Rapids, MI	2	Abandonment of K-P Well
Young's Environmental Cleanup, Inc., Flint, MI (Youngs)	6	Completion of Perimeter Groundwater Containment System (PGCS)
Ben McGeachy, Montgomery Watson Addison, IL	1	Respondent's General Contractor
Jeff Ramsby and Others, Montgomery Watson Madison, WI	6	Field Sampling Personnel
Ashok Rupani and Steve Mrkvicka, Black & Veatch Special Projects Corp., Chicago, IL	2	USEPA Oversight Contractor

Summary of field activities

A number of field activities were undertaken by the Respondents during this reporting period. From February 6, 1997, through March 28, 1997, Montgomery Watson and its subcontractors, HTI and Youngs, conducted field activities associated with the installation of PGCS and BWES. BVSPC provided oversight during the reporting period. Copies of BVSPC field notes and photographs showing key activities are attached.

Air Monitoring and Health and Safety

Health and safety personnel from Youngs and HTI were present on-site during all intrusive activities. Their main task was to conduct continuous air monitoring during intrusive activities, notify the working crew as necessary, and advise of any needed upgrades to Level C or Level B personal protection. Most of the activities were conducted in Level C personal protection for the operators and workers closest to the excavation and modified Level D personal protection for other workers.

Health and safety personnel conducted continuous air monitoring using a photoionization detector (PID). Periodically, or as suspected, draeger tubes for benzene and vinyl chloride detection were also utilized.

Barrier Wall Extraction System

During this reporting period, HTI completed benching and pre-excavation activities associated with the BWES. HTI also installed approximately 1,200 feet of barrier wall and eight (8) of the nine (9) extraction trenches associated with the barrier wall.

Spoils Handling

Before conducting benching and pre-excavation activities along the southern leg of the barrier wall alignment, Montgomery Watson identified two separate areas along the alignment. Excess soils excavated from one of these areas were placed in the Buried Waste Spoils Management Area. Excess soils excavated from the other area were placed in the Offsite PCB-Containing Spoils Management Area. Excess soils from all other areas were placed in the Upper Aquifer Spoils Management Area in accordance with the Spoils Management Plan.

During the benching and pre-excavation activities along the southern leg of the barrier wall alignment, municipal waste/debris was encountered to a maximum depth of 9 feet below ground surface (bgs) along an approximately 200 feet long stretch of this alignment. All of the municipal waste/debris was excavated and placed in the

northwestern corner of the Upper Aquifer Spoils Management Area. The municipal waste/debris was kept segregated from other spoils in the Upper Aquifer Spoils Management Area.

On February 6, 1997, Montgomery Watson personnel encountered a production well located just north of the Kapica-Pazmey building. The well appeared to have not been used for a long period of time. While attempting to take water level measurement, an obstruction was encountered at 25 feet bgs. Since the well (designated as K-P Production Well) was located along the barrier wall alignment, well abandonment activities were undertaken by Montgomery Watson shortly thereafter. The drill cuttings generated during abandonment activities were containerized and placed in the Offsite PCB-Containing Spoils Management Area since the well was located within the estimated PCB-containing soils area. The decontamination water was stored in a 55-gallon drum and placed in the Drum Staging Area. Well abandonment activities are described in detail later in this report.

Before HTI conducted benching and pre-excavation activities near the south-east corner of the Offsite Containment Area, Midwest Material Services (Midwest) of Hammond, Indiana, mobilized to the site on February 15, 1997, and completed the demolition of the Kapica-Pazmey building. The building demolition debris was placed in the Demolition Rubble Management Area in accordance with the Spoils Management Plan.

Benching and Pre-excavation Activities

During this reporting period, HTI conducted benching and pre-excavation activities in the Offsite Containment Area to prepare for the installation of barrier wall and associated extraction trench 14 along the southern leg of the barrier wall alignment.

Benching is defined as creating a level, working platform either by excavating the native soils or building an embankment with clean imported soils to achieve required elevations. Pre-excavation refers to the excavation of undesirable materials such as municipal waste/debris and if necessary, backfilling with clean, imported sand. Benching was also required to overcome limitations on the trencher box or the installation boot length (maximum 20 feet) and varying elevations of the top of the clay layer. Depth to clay is maximum in the south-east region of the Offsite Containment Area. Excavation varying in depth from six to eight feet was conducted at various locations along the southern leg of the barrier wall alignment. Benching activities for the barrier wall and the extraction trench 14 were conducted simultaneously.

A number of drums and drum carcasses were encountered during benching and pre-excavation activities along part of the southern leg of the barrier wall alignment approximately between the stations 13+00 and 11+00. Some of the drum carcasses and empty drums that did not need overpacking were relocated to the Miscellaneous Debris Management Area. The remaining drums were staged in an area north of the Buried Waste Spoils Management Area and temporarily covered with plastic.

An abandoned concrete septic tank was encountered during benching and pre-excavation activities along the southern leg of the barrier wall alignment. The septic tank was filled with soils. The tank was placed in the Demolition Rubble Management Area, whereas the soils were placed in the Offsite PCB-Containing Spoils Management Area in accordance with the Spoils Management Plan.

Regular pickets held at the site by Local 150 Operating Engineers Union hindered the delivery of clean sand from offsite sources. In order to continue the benching and pre-excavation activities, HTI continued to use the sand from along Colfax Avenue that was excavated during benching activities along eastern leg of the barrier wall alignment in the Offsite Containment Area. In a March 24, 1997, letter to the Respondents, the USEPA approved the use of "Colfax Sand" based upon the laboratory analytical documentation which certified that the "Colfax Sand" did not contain chemicals above the Remediation Levels listed for the site in the Unilateral Administrative Order. However, after an agreement was reached between HTI and Local 150 Union on March 10, 1997, delivery of clean sand from offsite sources resumed.

During this reporting period, HTI completed benching and pre-excavation activities along the southern leg of the barrier wall alignment and associated extraction trench 14 in the Offsite Containment Area.

Installation of Barrier Wall

On February 6, 1997, HTI began installation of the barrier wall at station 21+50, south of the ACS railroad tracks, and proceeded south in a counter-clockwise direction along the western leg of the alignment. The benching and pre-excavation activities conducted along the barrier wall alignment provided an approximately 15 feet wide corridor to allow the barrier wall trenching machine to pass along the alignment.

The barrier wall installation activities began by first swinging the installation boot down into the ground into a vertical position to the design installation depth providing for at least a two-foot key into the underlying clay layer. The trenching machine cut a nominal 16-inch wide trench and installed the 60-mil HDPE membrane with water tight HDPE joints approximately every 100 to 130 feet. The trenching machine unrolled the

HDPE membrane from the installation boot and backfilled the trench with the excavated material in one pass. The trenching machine moved on top of the wooden mattes placed along its path to disperse the weight of the trenching machine and ease construction under wet conditions.

The HDPE panels with the attached joint system were approximately 28 feet high and 100 to 130 feet long. The joint profiles were heat-welded to the two ends of the 120 feet long HDPE panel by a qualified HDPE welder prior to the panel being rolled up for insertion into the installation boot. Each joint was inspected and tested by HTI's Engineering subcontractor Foster Wheeler, Inc. of Columbus, Ohio per recommendations of the manufacturer.

The installation boot was equipped with a delivery system for the HDPE panel once it was rolled up and placed on the spindle inside the boot. The first HDPE panel was restrained by a rigid pipe just outside the back of the installation boot. The HDPE panel is unrolled within the boot as the trenching machine moved forward pulling the boot behind it. A bentonite slurry feed was used to seal the base of the HDPE panel into the underlying clay layer as the panel was being installed.

With the help of a mixing/delivery system attached to the trenching machine, the backfill material was blended with bentonite to reduce the hydraulic conductivity of the backfill surrounding the HDPE membrane, thereby providing an extra level of protection for the wall. The excess HDPE panel was left up above the ground surface to be taken care of later.

Once the end of one HDPE panel was reached, the forward motion of the trenching machine was halted and the boot, which remained in vertical position, was readied for the insertion of a new HDPE panel. The connection was made using the joint profiles attached at the end of the two panels. This was accomplished by slowly lowering the new panel onto the spindle inside the boot, while sliding the two joint profiles together at the same rate.

During this reporting period, HTI had installed 10 panels for a total wall length of approximately 1,200 feet between stations 21+50 and 9+00.

Installation of Barrier Wall Extraction Trenches

On February 9, 1997, HTI began installation of barrier wall extraction trenches located inside of the barrier wall alignment. Extraction Trenches 10, 17 and 18 were located in the Onsite Containment Area, whereas trenches 11, 12, 13, 15 and 16 were located in the Offsite Containment Area.

Field activities began with preparation of the installation areas. The preparation activities included benching and pre-excavation activities, and, if necessary, placement of wooden mattes along the trenching machine's path to disperse the weight of the machine and ease construction under wet conditions.

Each trench began with a sump and extended approximately 100 feet. The trench depths varied from approximately 16.5 feet bgs at extraction trench 11 to approximately 26.5 feet bgs at extraction trench 15. The trenching machine was equipped with a cutting boom and a delivery box for the sump and filter material placement. Before installing each trench, an 8-inch diameter HDPE vertical riser was first mounted on the front of the delivery box. A 6-inch diameter corrugated HDPE screen with an exterior geotextile fabric filter was then fed through the delivery box and connected to the vertical riser at a T-joint approximately six (6) inches from the bottom of the vertical riser. The connection was made with multiple screws and bolts that were wrapped with layers of protective tape.

The trenching machine was then positioned at the pumping end of the extraction trench. The cutters dug down until the cutting boom was vertical to the ground surface. At this point, the vertical riser was released from the delivery system. The riser extended six (6) inches into the upper clay layer to allow the screen to be placed on top of the clay layer. The trenching machine began a forward motion while simultaneously excavating a nominal 16-inch wide trench, installing the horizontal screen, and continuously backfilling with sand filter material from two feet bgs to the total trench depth. As the trenching machine moved forward, the sand, previously loaded into the hopper located on top of the delivery system, replaced the excavated material that was being discharged from the machine's conveyor system. The depth and grade of the trenching machine was maintained by continuously checking the grade of the cutting boom. Once the design trench length was reached, the screen was converted to a solid 6-inch diameter corrugated HDPE pipe that would serve as an access port at the non-pumping end of the trench. The access port extended approximately 15 feet horizontally from the end of the screen.

Perimeter Groundwater Containment System

During this reporting period, Youngs installed the conveyance piping and valve assembly associated with the PGCS effluent discharge system. HTI and Youngs worked together to complete the mechanical and electrical installations for the PGCS extraction trench, PGCS effluent discharge system and the associated conveyance piping.

Montgomery Watson and its subcontractor, Bowen Engineering of Indianapolis, Indiana, worked together to complete PGCS start-up activities.

Spoils Handling

No excess soils were generated from the PGCS effluent discharge system construction activities. Construction dewatering water generated during activities associated with PGCS was temporarily stored in 20,000-gallon Baker Tanks and passed through a granular activated carbon unit. After the effluent samples indicated that the discharge standards have been met, this water was discharged to the wetlands by passing it through the treatment system.

Installation of PGCS Effluent Discharge System

Youngs began installation of the PGCS effluent discharge system on February 18, 1997, and completed on March 13, 1997. The effluent discharge system consisted of a 4-inch diameter HDPE pipe running from the effluent weir box inside the treatment building to a valve assembly located a few feet east of the PGCS extraction trench and three 4-inch diameter HDPE discharge pipes running from the valve assembly to different locations in the wetlands for eventual disposal. The three discharge pipes culminated in a manhole installed for clean-out purposes. A gentle slope was provided in the east-west direction to allow for flow by gravity. All pipes were installed at an approximate depth of 4 to 5 feet bgs. All excavated material was re-used as backfill. Youngs conducted the pressure testing of the effluent discharge pipes on March 12, 1997.

Miscellaneous Work Associated with the PGCS Extraction Trench

During this reporting period, Youngs and HTI worked together to complete miscellaneous mechanical and electrical hook-ups associated with the PGCS extraction trench. These activities began on February 24, 1997, and were completed on March 24, 1997.

Youngs extended the PGCS conveyance piping to each of the PGCS sumps. HTI installed the pumps and surface completion at each of the three PGCS sumps. A total of 20,700 gallons of groundwater was pumped from the three sumps to keep the excavation around each of the sumps dry and help facilitate installation activities. This process helped develop the sumps. Therefore, no separate development activities were conducted. The pumped water was temporarily stored in 20,000-gallon Baker Tanks until it could be run through the treatment system before eventual disposal to the wetlands. Problems encountered during these activities are described later in this report.

PGCS Start-up Activities

The PGCS start-up activities began on March 3, 1997, and continued through this reporting period. Following tasks were completed during this reporting period:

- Final Inspection of all equipment including UV oxidation unit.
- Start-up of air compressor and air dryer.
- Start-up of clarifiers and sand filter.
- Activation of Carbon Canisters.
- Passivation (using nitric acid) of Hydrogen Peroxide Tank and associated piping.
- Chemical delivery (Sodium Hydroxide, Sulfuric Acid, Hydrogen Peroxide) to the site.
- Closed loop clean water testing of the treatment system.
- Clean water testing of UV oxidation unit.
- Site water (from southern PGCS sump) testing of UV oxidation unit.
- Completion and testing of System Instrumentation and Controls.

At the time of testing of site water, the Quality Assurance Project Plan (QAPP) for the Performance Standards Verification Plan (PSVP) was under review by the USEPA. Therefore, all treated water was sampled and temporarily stored in 20,000-gallon Baker Tanks until approval of the PSVP-QAPP was granted by the USEPA.

Second Quarter Groundwater Sampling

Second round of quarterly groundwater sampling was conducted during the week of March 24, 1997. Before sampling, water level measurements were taken from all existing monitoring wells/staff gauges/piezometers with the following exceptions:

Location	Remarks
Monitoring Well MW-35	Found damaged
Piezometer P-6	Not Found, possibly destroyed
Piezometer P-12	Free Product encountered
Piezometer P-20	Found damaged
Piezometer P-21	Could not locate
Piezometer P-29	Free Product encountered
Piezometer P-30	Free Product encountered
Piezometer P-37	Found damaged

Water level measurements were taken by three field teams at a time. Water level measurements were also taken at the Griffith Landfill wells (M-1S, M-1D, M-2S, M-2D, M-3S, M-3D, M-4S, M-4D, M-5S and M-5D) in the presence of City of Griffith personnel.

Groundwater sampling was conducted in accordance with the SOP for Groundwater Monitoring Well Sampling dated March 8, 1996, and the revised SOP dated March 21, 1997. The October 30, 1996, letter to the Respondents also provided an SOP clarification which permitted Respondents to use deionized water for decontamination purposes and for field blank preparation.

The sampling locations and analyses for upper aquifer wells were approved by the USEPA in a letter to the Respondents dated October 30, 1996. The upper aquifer monitoring plan was re-iterated by the USEPA in a letter to the Respondents dated March 3, 1997, *Approval of the Phase II Upper Aquifer Technical Memorandum with Modifications.* The sampling locations and analyses for lower aquifer wells were approved by the USEPA in a letter to the Respondents dated October 11, 1996. The lower aquifer monitoring plan was re-iterated by the USEPA in a letter to the Respondents dated March 3, 1997, *Approval of the Lower Aquifer Technical Memorandum with Modifications.* All samples, except for MW-7 and MW-21, were to be analyzed for full-scan analyses (TCL/TAL). Samples from wells MW-7 and MW-21 were to be analyzed only for full-scan organics (TCL).

Groundwater samples were collected from the following wells: upper aquifer wells MW-6, MW-11, MW-12, MW-13, MW-14, MW-15, MW-18, MW-19, MW-37, MW-38, MW-39, MW-40, MW-41, MW-42, MW-43, MW-44, MW-45, MW-46, MW-47, MW-48, MW-49, M-1S, M-3S, and M-4S; and lower aquifer wells MW-7, MW-8, MW-9, MW-10C, MW-21, MW-22, MW-23, MW-24, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34, MW-36, MW-50, MW-51, MW-52, MW-53, MW-54, MW-55, and M-4D. The upper aquifer wells M-1S, M-2S, M-4S and the lower aquifer well M-4D are located within the Griffith Landfill area and are owned and operated by the City of Griffith. Lower aquifer well MW-35 was found to be damaged and, therefore, could not be sampled.

Groundwater purging and sampling was conducted using a low-flow Grundfos submersible pump. The pumping rate was maintained at approximately 300 ml/minute. Field parameters such as pH, specific conductivity, temperature, and turbidity readings were measured during purging. Sampling was initiated when the field parameters stabilized for three consecutive readings within 10 percent of the previous readings.

Sample handling and chain-of-custody procedures were followed in accordance with the SOP.

BVSPC field sampling personnel included Scott Radley, Bal Berena, and Rob Lantz. BVSPC split a total of 14 samples with Montgomery Watson for following well locations: upper aquifer wells MW-6, MW-14, MW-40, MW-42, MW-48, M-1S, M-3S, and M-4S; and lower aquifer wells MW-9, MW-10C, MW-23, MW-28 and MW-51. BVSPC also collected a field duplicate at MW-48, an equipment blank sample, and a total of seven (7) trip blanks. BVSPC submitted all samples for full-scan analyses to the Central Regional Laboratory (CRL) in Chicago, Illinois. The split sample locations were verbally approved by the USEPA WAM Sheri Bianchin. The sample handling and chain-of-custody procedures were followed in accordance with the Mini-Quality Assurance Project Plan, Revision 3, January 14, 1997.

Abandonment of K-P Production Well

On February 7, 1997, Stearns Drilling Company of Grand Rapids, Michigan, mobilized to the site to abandon the K-P production well. It was not evident from the surface inspection whether the well terminated in the upper aquifer or extended through the confining clay layer, into the lower aquifer. Because of the potential that the well could represent a migration pathway, it was abandoned using hollow-stemmed augers and rotary drilling method. The abandonment activities were conducted in accordance with the USEPA-approved Specific Operating Procedure (SOP) dated February 7, 1997, except one modification which was made in the field by Montgomery Watson. A mud rotary method was used, whereas the approved SOP indicated that an air rotary method would be used. In a March 14, 1997, letter to the USEPA, the Respondents provided a justification for choosing mud rotary method over an air rotary method. The abandonment activities were supervised by Mr. Cliff Yantz of Montgomery Watson.

The abandonment activities began by first pulling out the discharge piping from the well. The discharge piping consisted of an inflow and an outflow pipe connected to a PVC header. The water level was measured at 28.2 feet bgs and total depth of the well was measured at 76.04 feet bgs. The measurements indicated that the well was screened in the upper zone of the lower aquifer. Montgomery Watson personnel collected a representative sample for volatile organic compound (VOC) analysis using a stainless steel bailer as opposed to a disposable bailer indicated in the SOP. The disposable bailer could not go down more than couple of feet below water table because the well casing appeared to be at an angle. A water sample at this location would not

be representative of the actual site conditions. Therefore, a stainless steel bailer, which was able to reach all the way to the well bottom, was used instead.

The 4-inch diameter PVC well casing was overdrilled using 81/4-inch inside diameter (ID) hollow-stemmed augers to the top of the upper clay layer, i.e., approximately 30 feet bgs. A 6-inch stainless steel casing was then installed to a depth of 35 feet bgs and grouted in place to seal off the upper aquifer from the lower aquifer. Before overdrilling, only top 10 feet of the well casing could be pulled out. The rest of the casing was ground up and flushed out during mud rotary drilling.

After a minimum of 12 hours of grouting, drilling inside the 6-inch casing began using mud rotary method. The drilling continued through the upper clay layer, approximately 30 feet thick, to the total measured depth of the well. The borehole was then backfilled with cement-bentonite grout from the base of the borehole up.

The 6-inch casing was left in place. An additional piece of casing was welded to the existing casing, thus extending it to more than six (6) feet above ground.

The abandonment activities were completed on February 10, 1997.

Miscellaneous Activities

Youngs completed the pressure testing of the water line to the treatment building on February 12, 1997. On February 26, 1997, Youngs installed a septic tank just outside the north-east corner of the treatment building.

Montgomery Watson subcontracted Midwest Material Services (Midwest) of Hammond, Indiana, to conduct continuous trenching along the western and northern leg of the barrier wall alignment in the Onsite Containment Area. Midwest began trenching approximately at station 25+00 on March 19, 1997, and ended approximately at station 37+00 on March 20, 1997. The purpose of this task was to locate any obstructions that might be encountered, thereby defining the extent of benching and pre-excavation activities that would have to be undertaken by HTI before installing barrier wall in these areas. The depth of the trench was maintained at approximately five (5) bgs. The trench was backfilled with the excavated material. Midwest conducted continuous air monitoring using an HNu.

On February 11, 1997, Montgomery Watson brought in an independent auditor, Mr. Phil Colarhan, onsite to evaluate health and safety procedures being followed at the site.

During this reporting period, Mr. Scott Smith of local newspaper, The Times, visited the site on three separate occasions (February 6, 1997, February 13, 1997, and

March 13, 1997) to inquire about the site activities. News articles related to the site activities were published in The Times on February 7, 1997, and March 14, 1997.

As described in the earlier reports, the USEPA had received several public complaints about the site activities. The USEPA and BVSPC jointly contacted some of the local residents in order to educate them about the site activities and reassure them that all the site activities are being conducted in accordance with the USEPA-approved plans and under the oversight of the USEPA contractor BVSPC.

Problems Encountered/Corrective Actions

HTI encountered several problems during barrier wall installation activities. On February 14, 1997, the joint between the first and the second HDPE panel pulled apart near station 20+00 as the trenching machine moved forward to unroll the panel. Similar situation arose on March 3, 1997, when the joint between the eighth and the ninth HDPE panel pulled apart near station 12+00. Each time the joint pulled apart, HTI ceased forward progress, made unsuccessful attempts to complete the connection, pulled the installation boot out of the ground to make repairs and modify the delivery system, and finally resumed forward progress leaving a gap between the panels.

Based on their own alignment borings and review of investigative borings conducted by Montgomery Watson, HTI was expecting the barrier wall alignment area to consist entirely of fine sand and clay. However, on March 11, 1997, the trenching machine unexpectedly encountered coarser gravel, cobbles and boulders within the upper aquifer zone near the south-east corner of the Offsite Containment Area. This encounter caused significant damage to the cutting chain of the trenching machine. The coarser gravel was locking up the installation boot thereby causing uneven feed of the HDPE panel. On March 16, 1997, HTI cut the installed HDPE panel at that location and pulled the trenching machine out of the ground to make repairs. After completing repairs, HTI resumed forward progress on March 20, 1997, thus creating the third gap in the barrier wall. After installing approximately 80 feet of the new panel, HTI encountered the same problem with the coarser gravel locking up the installation boot thereby causing uneven feed of the HDPE panel. Finally, on March 27, 1997, HTI halted barrier wall installation activities, pulled the trenching machine out of the ground, and began working with Montgomery Watson to come up with a viable solution.

HTI is currently working with Slurry Walls, Inc., an independent consultant, to design an acceptable solution to close the three, and potentially more, gaps which have been created in the barrier wall.

The original design of the PGCS effluent discharge system had called for installation of a valve vault from where the three discharge pipes would begin their run towards the wetlands. The intended location of this valve vault was approximately 200 feet west of the PGCS extraction trench across from station 28+00. Due to heavy weight (approximately 20 tons) of the concrete vault and extremely wet and muddy conditions in the installation area, Youngs was unsuccessful in keeping the excavation open long enough to complete the installation, in spite of continuously pumping/de-watering the excavation and using the steel sheet piles. The steel sheet piles were pushed/driven with the help of back-hoe bucket. Youngs halted the installation activities on March 4, 1997, and began working with Montgomery Watson's design engineers to come up with other options which could be utilized.

On March 10 ,1997, Youngs and Montgomery Watson decided to do away with the vault and install only the valve assembly approximately four (4) to five (5) feet bgs. To avoid problems due to the wet and muddy conditions, the location of the valve assembly was moved further east as described earlier. Youngs began installation of the valve assembly on March 11, 1997. The three discharge pipes had to be extended further east to reach new valve assembly location.

Youngs encountered high water table and extremely wet conditions while excavating around the northern PGCS sumps. A vacuum truck was mobilized to the site on March 17, 1997, to help speed up the pumping and complete the conveyance piping hook-up activities. On February 25, 1997, while excavating around the central PGCS sump, Youngs back-hoe accidently damaged the steel sump connections at the bottom. Extremely wet conditions were also encountered in this area. Youngs used the vacuum truck to keep the excavation dry. HTI helped Youngs repair the sump connections. The repair activities were completed on March 18, 1997.

Dispute with Local 150 Operating Engineers Union that began on December 3, 1996, ended on March 10, 1997, with HTI and the Union reaching an agreement. This agreement allowed for the resumption of delivery of materials and supplies from offsite sources to all subcontractors working on the site.

Several delays were encountered due to cold weather and equipment breakdown.

Future Work Schedule

Following activities are planned through June, 1997:

- Installation of PGCS piezometers and continued tuning of the treatment system.
- PGCS 72-hour testing and start-up sampling.

- Completion of barrier wall and extraction trench 14.
- Installation of piezometers associated with BWES.
- Completion of barrier wall conveyance piping and associated mechanical and electrical hook-ups.
- Construction of 4-inch water line inside the ACS plant to replace the production wells.
- Abandonment of six ACS production wells.

Following investigative activities are planned through June, 1997:

- Third Quarterly sampling of lower and upper aquifer wells.
- Residential Well Sampling.
- Sampling of ACS facility well ATMW-4D.
- Sampling of six (6) ACS production wells.
- Installation of a new monitoring wells to replace MW-35 and MW-54.

Comments

At the time of writing of this report, following tasks remain to be completed by Montgomery Watson:

- The soil cuttings generated from drilling through the upper saturated zone at well locations MW-54/MW-55 should be placed in drums. The soil cuttings were left in place near the wells.
- The new monitoring wells should be permanently labelled as soon as possible.
- The two drums encountered near the southwestern corner during installation of the BWES conveyance piping have not yet been managed per the spoils management plan.
- Drums encountered during benching and pre-excavation activities along the southern leg of the barrier wall alignment were staged in an area north of the Buried Waste Spoils Management Area and temporarily covered with plastic. These drums remain to be handled and relocated in accordance with the Spoils Management Plan.

Signature: _____

Date: 6-12-97

Ashok Rupani 2-6-97

0900 On site
Weather cloudy, 30°F
Go over to OFCA. HTI is ready to test run the barrier wall trencher. (BW trencher)

0930 Begin running the BW trencher.
#8 #9 This test run is intended to see if the trencher is functioning as required and to see if there are any minor adjustments are to be made.

0955 After about 10 feet of wall, HTI stopped. They said the
#10 trencher is working just fine but they would have to fine tune the bentonite feed system.

1010 HTI continues to pre-excavate
#11 the BW trench in the southwest corner of the OFCA

1020 During the pre-excavation along western leg of the BW, approx. 5 drums (with contents)
#12 were encountered. The drums were placed alongside the trench temporarily.

1100 Back by the trailer. Lee said as soon as YECI completes pressure testing of the water line, they will leave and resume work on Monday 2/10/97.

1115 Lee indicated this morning there was a major flare with the picketers. They tried to block YECI from entering the site. Apparently, the quarry where sand is coming from, has also been picketed.

1150 Break for lunch

1235 Back to the site. Lee told me a reporter from Hammond Times newspaper was onsite a few minutes ago and wanted to talk with EPA rep onsite. He would probably be back.

1330 YECI is taking off for the weekend. Pressure testing of the water line could not be completed and hence will resume next week.

1400 Go over to OFCA. HTI is no longer doing the test run on the BV trencher. HTI continues to use excavate in the southwest region of the OFCA.

1425 Talk a walk over to KP building with Lee to see the production well encountered this week.

#13 Production well by KP bldg. Lee told me he had tried to found the well but encountered an obstruction at 25' or so. (Looking south)

1435 Ben indicated that drillers will be onsite to abandon this well.

1450 Called Sheri and left a message regarding well abandonment schedule.

1455 Talked with Ben and Todd in detail about soil pile by the drum area. Based on EPA's recommendation, Ben said he is going to conduct additional headspace analysis

on Monday 2/10/97 with the help of YECL's bobcat. Todd indicated that Montgomery Watson would like to come up with an area inside the plant to stage the 2500 ppm soils.

1600 Called Steve and discussed today's activities

1625 Off site

end

0900 on site
Weather cloudy, 28°F
Cliff Yantz from Montgomery Watson will be supervising the well abandonment activities to be conducted by Stearns Drilling Co.
Ben said HTI has continued to do pre-excavation activities in the southwest region of the OFCA and are also setting up to do extraction trench 11 today.

0925 Cliff gave me a copy of an EPA approved Well Abandonment SOP dated 2/6/97

0935 Go over to OFCA to check up on HTI.

1000 #14 HTI setting up to do extraction trench 11 (looking east)
HTI indicated that they will be ready to do trenching at around 1300.

1035 Go over by KP bldg. Drillers are setting up.

1125 Drillers & Cliff take an early lunch.

1140 Lee said he would like to mark the waste area just west of the KP bldg sometime this afternoon.

1155 Break for lunch.

1240 Back to the KP Bldg.

1305 #15, #16 The pump for this well is of jet type with an inflow and outflow pipes connected to a discharge PVC pipe.
water level = 28.2' bgs
Total well Depth = 76.04' bgs

1310 Ben had handed me over a revised SOP (dated 2/7/97) for KP production well and casing abandonment.

1340 HTI continues to pre-excavate near the buried waste area in the DFCA.

1400 Lee and I identified the buried waste area just west

of the KP bldg.
Cliff, the drilling supervisor for Montgomery Watson, tasked the well sample for VOCs.

1425 Begin overdrilling with an #17 8¼" ID hollow stem auger.

1445 #18 Pre-excavation by HTI (looking north-east)

1500 HTI is getting setup to do extraction trench II.

1540 HTI decides against starting trench II due to some problems with the conveyor belts.

1615 Cliff said the drillers just completed setting the 6 inch casing to 35' bgs. Depth to clay was 30' bgs.

1630 Cliff said they may have trouble getting the water in which case grouting will be done tomorrow.

1635 off site

2 rol

0930 On site
Weather: cloudy, flurries, 30°F
HTI did not do any trenching yesterday. They moved a lot of sand over to the south end of the barrier wall for trenching purposes and they will continue to do that today. HTI is going to try to begin doing extraction trench 11 sometime this morning.

0950 Drillers are getting ready to drill through the 6-inch casing. Cliff said they finished grouting at about 4 pm yesterday.
Cliff said the VOC samples he took on friday were not valid because they were taken a few feet below the water table and did not represent the aquifer water. The reason for that being the trailer would not go down because the well was at an

angle. The stainless steel trailer could have probably gone down all the way. Based on discussions with Cliff Vogt, Cliff used the stainless steel trailer (deviation from SOP) to sample again yesterday. He said he will send the samples for Monday delivery.

1020 Drillers are setting up for rotary drilling.

1130 Drillers take a lunch break. Will start drilling right after.

1135 Back for lunch

1230 Back to the site
Lee came by and said HTI completed extraction trench 11 few minutes ago.

1250 Drillers continue to drill #19 using the rotary

1315 Down to 30' bgs. The PVC casing was broken off from top to 10' below. The rest of the casing is being recovered in pieces.

1330 Left over by HTI.

#20, #21 Benching activities along the western leg of the barrier wall

#22, #23 Extraction Trench 11 (looking north/northwest)

1400 HTI also continues to move sand along Colfax over towards the barrier wall alignment.

1415 Lee indicated all water/mud filled drums would be placed along other drums near the OFCA trailers. He also informed me that excess spoils generated during extraction trench 11 installation have been moved over to U.A spoils mgmt area.

1515 Drilled down to 60' bss

1545 Off site

End

0915 on site
weather: cloudy, 30°F, few flurries

0935 Drillers just got done abandoning #24 the old production well

0945 HTI continues to pre-excavate #25 and dig up refuse along western leg of the barrier wall. Apparently they are going to remove barrier wall installation.

1115 YEC1 have continue pressure testing of the water line today.

1135 HTI continues to pre-excavate and remove trash in the OFCA.

1255 Break for lunch.

1245 Back to the site.

1310 Ben told me they will be heading sampling of soil pile by the drum area inside the plant.

1345 HTI continues to pre-excavate and remove trash along the western leg of the barrier wall alignment. HTI is setting up for the barrier wall installation.

1430 HTI indicated it would be few minutes before they can get going.

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110

1445	HTI resumes barrier wall
#26, #27	installation.
1525	After moving about 25' more, HTI had some equipment troubles. Total 40' has been installed.
1545	HTI decides to stop for the day.
1550	Go over to the trailer. Ben said he would like to sample the soil pile for head space tomorrow.
1615	Ben gave me a copy of Hammond Times article dated 2/7/97 related to the site.
1655	off site

end

Honok Rupani
2-11-97

111

0700 on site
Weather: cloudy, 28°F, windy
wind chill +1°F
Ben said YEC's operator is ready to help him sample soil pile for headspace analysis.

0730 Begin sampling the soil pile #28 (looking west)
Pick up five soil pile samples, one from the center and one each from the four corner areas

1000 All five samples indicated readings (headspace and field screening) around 300 ppm. So I told Ben once I get confirmation from EPA, the soil pile can be moved to UA spoils area.

1025 Called Steve and gave him an update.

1050 Go out by OFCA. HTI continues to do pre-trenching along the south end of the barrier wall alignment.

1150 Break for lunch

1235 Back to the site. HTI is still at lunch

1310 HTI continues to pre-trench and remove trash along the south end of the barrier wall.

1415 HTI is facing some equipment troubles with the barrier wall trench

1430 YECI continues to work on the pressure testing of the water line.
Phil Callahan, an independent safety consultant, was on site yesterday to audit site safety procedures.

1500 called Steve and connected with Steve to discuss some issues related to picketing and some public complaints lodged with EPA

1520 Called Tom Doyle, citizen who had lodged complaint with EPA, and introduced myself. I assured him all site activities are ongoing with EPA oversight and that if he has any concerns he is more

than welcome to call me or Peter Vaught or Ben at the site.

1535 HTI continues to move Calfax soil over by the southwest portion of the OFCA.

1550 HTI completed 50' of barrier wall thus totally completing about 100' of barrier wall.

1605 Faxed the copy of 2/7/97 news article over to Steve M.

1615 Told Ben that my field notes are available (regarding picketing issues) if he needs.

1645 Off site

AK

0845 on site
weather: 20°F, sunny, windy
Over at the OFCA, HTI continues to pre-trench and remove debris/trash in the southwest region of the OFCA. HTI is also preparing to resume the barrier wall trenching. YECI is working on the pressure testing of the water line
0900 Armelle Cafalong of MW is on site.
0945 HTI's equipment is ready to go but there seems to be some delay
1050 HTI still has not gotten their barrier wall trencher going
1100 Tim of HTI came by and briefed me about new health and construction safety procedures which will be followed from this week on. He showed me the contamination reduction zones and exclusion zones
1115 HTI continues to pre-trench and remove trash along the south

leg of the barrier wall.
1205 Break for lunch
1250 Back to the site. Ben told me YECI continues to work on PGCS electrical connections. Pressure testing of water line is done sometime this afternoon or tomorrow morning, YECI will relocate the soil pile by the drum area inside the plant.
1315 HTI has stopped pre-trenching activities temporarily.
1340 HTI is still working on getting their barrier wall trencher going. After 20' of installation, a new soil would be mounted on the trencher.
1420 HTI has completed 10 more feet of barrier wall when bentonite hose blew out.
1430 Lee told me sometime today or tomorrow HTI is going to lay down some of that slag material along the road in the OFCA.

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1445 HTI is moving the "gas station" over to within exclusion zone. This is being done to make sure no vehicle/equipment enters the CR zone.

1530 YECI has started relocating the soil pile by the drum area within the plant.

1540 HTI starts to move slag
#29 material to build a farm access road within the OFCA

1555 With the help of HTI, Lee starts to move the drums generated during well abandonment over to the drums staging area.

1640 YECI relocating soil pile
#30 (looking south-east)

1715 off site

End

Ashok Rupani 2-13-97

0830 On site
Weather: partly cloudy, 30°F, windchill -1°F
Lee told me HTI is trying to join another polywall roll before they can continue barrier wall trenching. So far, 120' of wall has been installed until yesterday.

0900 YECI continues to relocate the soil pile over to the UA spoils area

0920 YECI completes the relocation of the soil pile.

0940 HTI continues to pre-excavate in the south region of the barrier wall.

0950 Lee told me they just came across a bunch of drum carcasses along the buried waste section of the south leg of the barrier wall. NO significant readings off of this carcasses were observed.

1010 HTI is working on adding on another roll of polywall

1030 Sheri and Holly on site.
1040 Start the scheduling mtg with Pete Vagt, Tom Fonseca, Todd Lewis and Ben.
Two major issues were discussed:
- MW has to come up with a plan to stage >500 soils which might be excavated within the ONCA
- They want to do 20 feet apart test pits along barrier wall alignment within the ONCA to verify the presence of drums
Also discussed a number of health and safety procedures being followed at the site.
12:25 Meeting is over. Pete Vagt is going to send letters to Sheri regarding response to comments on Spoils Plan addendum and work plan for test pits.
1250 Go over to OFCA with Sheri and Holly to show them around. Showed all the spoils areas, drums uncovered today, the

abandoned KP well, the trenching and pre-trenching being done by HTI and barrier wall trenches.
13:45 Go over to the treatment bldg. Ben explained the entire process flow to Sheri and Holly.
14:30 Sheri and I go over to Nicole Litsell's, a nearby resident on Reder Rd. Holly has left the site. We explained to Nicole the project objectives and all the on-going activities at the site.
1530 Break for lunch
1615 Back to the site. Scott Smith & Hammond Times in onsite to talk to Pete Vagt and Sheri. We had detailed meeting with Scott and explained to him what activities were ongoing at the site
1655 Sheri is off site
1720 off site

end

0900 On site
Weather: sunny, 28°F
YECI is not onsite today. They will be back monday, 2/17/97, to begin work on discharge piping. HTI had problems in joining the two panels yesterday. the new panel was jammed and would not unroll. So the trencher was taken out and staged aside to fix the problems.

0920 Ben indicated panel joint at this location may be not possible to achieve. So they will start the new panel (without a joint) at the original starting point thus making the original panel installed useless.

1015 HTI continues to work on the trencher and pre-excavation and trackremoval along the South leg of the barrier wall alignment

1100 Go over by the landfill fence to oversee the pre-trenching along the south leg of the barrier wall
1130 called Sherie and updated her on the situation. Asked if we have a plan for management of PPE. She will discuss with Steve and others.
1210 Break for lunch
1300 Back to the DFCA
#-31 HTI is building a decon pad just inside the exclusion zone with the help of coltex sand. (looking north east)
1330 A few of drum carcasses, empty drums into uncovered during the pre excavation activities along the south leg of the barrier wall. (looking south)
1345 Begin relocating these drum carcasses and empty drums over to the miscellaneous debris area. Some drums were left in place to be managed next week. Of the drums relocated today, none of them required to be overpacked.

1420 HTI continues to pre-excavate
#33 Trash depth in this part of the
#34 site is relatively shallow (6 to
7' below ground)
1520 Go over to the trailer to discuss
weekend plans at the site. YEC1
will not be onsite this weekend
HTI might only pre-excavate on
sunday. Tomorrow, the KP
building will be demolished.
1600 off site

end

0820 On site
Weather: sunny, 20°F, breezy
Midwest was on site at 0630 this
morning to demolish the building.
In about 30 minutes, the building
was down. They are now working
on the foundation slab.
0846 Go over to DECA. Midwest
is working on moving the founda-
#1 tion slabs. Took 5 pictures of
to the operation.
#5
HTI continues to pre-trench and
remove debris along the south
leg of the barrier wall.
0945 Midwest continues to remove foun-
dation slab. The building debris
is being moved over to the building
debris piles area.
1024 #6, #7, #8 Building demolition
activities
1130 #8 Building demolition complete.
The area is being graded.
1255 off site

end

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0915 On site
Weather: sunny; 30°F
windchill −1°F
Meet up with Lee. HTI continued the pre-trenching activities on Saturday and Sunday. The sand in the southeast region of the OFCA appeared to be like Colfax sand. I emphasized to Lee that even if there is no trash in this area, any soils excavated in this area should be either left in place or handled in accordance with spoils plan

0940 HTI is still working on their trencher box. They also continue to pre-trench in the southeast region of the OFCA.
Ben is having a meeting with Lee 150 at the trailer. Will have to wait for Ben to check up on what YECI

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is today and rest of the week.

1015 Ben indicated YECI is putting together the concrete vault and the three concrete manholes today and hopefully will start the discharge piping installation tomorrow.

1035 HTI continues to pre-trench in the southeast region of the OFCA.

1125 The concrete vault for the discharge #9 system assembled on site. (looking north)

1145 Leave site to drop off film rolls for development.

1200 Break for lunch

1250 Back to the site. HTI is still at lunch.

1320 HTI continues to pre-trench.

1445 Had some discussions with Ben about excavated materials along the south leg of the barrier wall. I indicated as long as I am assured that these soils will be returned at exactly same location

the excavated soils in this area can be placed temporarily along trench side. Otherwise they should be handled in accordance with the spoils plan.

1520 Go over by the pre-trenching areas near the ex-KP bldg location. They had uncovered an abandoned concrete vault with sand in it. It probably was a septic tank. Soils excavated around this area would not be re-used and was handled in accordance with spoils plan. The excavated soils from this area which would be re-used have been temporarily placed behind the PCB-soil pile since placing them alongside the trench would have caused inconvenience.

#10, #11 Septic tank uncovered during
1525 pre-trenching (looking

north/northwest)

1535 #12, #13 Pre-trenching in the southeast region of the OECA.

1612 #14 The three manholes for the discharge system (looking north)

1640 off site

end

0900 on site

Weather: sunny, windy, 50°F

Meet up with Ben. HTI continues to do pre-trenching in the OECA. will probably wrap it up today. YECI should be starting excavation for discharge system this morning.

1015 HTI completes barrier wall pre-trenching activities. will begin pre-trenching for extraction trenches this afternoon.

1045 YECI begins installation of #15 discharge system by installing the northernmost diffuser manhole.

1145 Back for lunch

1240 Back to the site

1335 YECI continues to work on the #16 discharge system, northernmost leg of the system. (looking south)

1405 #17 the 4-inch pipe snapped. the YECI getting setup to re-fuse the pipe again.

1455 #18 the northernmost leg of the discharge system almost complete. (looking south)

1520 YECI completes installation of northernmost leg of the discharge system. the excavated soils will all be put back in the trench.

1535 YECI begins to get ready for central leg of the discharge system

1600 Lee told me HTI is done for the day. they did not start pre-trenching extraction trenches 13 and 14. the trencher is almost ready to go. the barrier wall installation might start back up tomorrow. HTI has covered all excavated elements in the OECA, waiting to be overbacked, with plastic temporarily.

1625 YECI is halfway down the central leg of the discharge system.

1645 off site

end

0840 on site
Weather: cloudy, windy, 35°F
YECI continues to excavate central leg of the discharge system
0900 #19, #20 YECI is almost done with the central leg of the discharge system
0930 Begin back-filling
1015 Lining up for the southern most of the discharge
(#21) 1035 Excavating for the manhole
(#22) 1058 Lowering the manhole
(#23) 1115 Continue to excavate canal install piping
1150 Break for lunch. Dee told me HTI continues to ~~bore~~ pre-trench ATR at extraction trench #13.
1250 Back to the site.
1315 YECI continues to install piping for the discharge structure.
1415 HTI resumes construction of barrier wall
1530 YECI completes installation of south leg of the discharge system will begin the installation of

vault tomorrow.
#24, #25, #26 HTI resumes construction of barrier wall a few feet south of the original panel which was installed last week
1610 HTI is done for the day. They installed about 50' or so between stations 19 and 20.
1615 Called Stevie and gave her an update. She indicated abandonment of RCS production wells will take place in about four weeks.
#27 Re-trenching extraction trench #13 (looking north) HTI accidently hit air & water conveyance piping installed by YECI. YECI would have to re-fuse the pipes later.
1630 YECI continues to back-fill the areas which were excavated for south leg of the discharge system.
1645 Off site

end

0915 On site
Weather: cloudy, 35°F
One of the VECI crew members informed me that they do not plan on doing vault until Monday because of extremely wet conditions. They are going to install septic tank between today and tomorrow. Some electrical and mechanical work is going on with the PGCS trench and conveyance piping.

0930 Mark Traverse and Pete Vogt are on site for the weekly meetings.

0950 Ben Shue and me can update about ongoing and upcoming activities. Cleanwater startup of the PGCS will begin the week of 3/10/97.

1020 Andy of HTI indicated they plan to complete 300' of barrier wall by the end of the day.

1100 Called Chris and let her know that meeting with the city onsite has been postponed. She discussed residential well sampling during the upcoming quarterly event. She ask[ed] me to drive around and verify the well locations are in the vulnerable zone.

1145 Break for lunch

1250 Back to the site
HTI is not doing any pre-trenching today. HTI is almost ready to start installing the second panel of the barrier wall.

1345 HTI begins moving the sand over to extraction trench #14 location.

1430 HTI continues to install the barrier wall.

1515 Water about 15' of the second panel. HTI shut down due to problems with bentonite feed system apparently due to steady rain.

1530 VECI did not install septic tank. They basically worked on mechanical/electrical work on the PGCS piping.

1550 off site

end

Ashok Pipani 134
2-21-97

0900 on site
Weather: 45°F, heavy rain
Met up with Armelle, Ben and Lee are not onsite. Armelle indicated YECI is already offsite and will be back Monday 2/24/97 to begin working on the discharge system. HTI is still working on the bentonite feed system and they dont anticipate getting started today. Only some electrical work inside the bldg will take place today. She indicated Lee and Ben were on site this morning and left only after talking with HTI about scheduling. I requested Armelle to keep me posted during about HTI's progress on getting the bentonite feed system fixed.
1005 off site.

end

Ashok Pipani 135
2-24-97

0900 on site
Weather: sunny; 20°F
Met up with Ben and Lee. YECI is not on site yet. Lee told me HTI got started yesterday afternoon but only after installing 20 more feet of barrier wall, they got shut down again due to problems with their bentonite feed system. This morning HTI continued to work on the feed system. They probably would be able to begin barrier wall installation earlier late this morning and early afternoon.
1025 YECI onsite
1040 Lee told me HTI has not yet completed pre-trenching and trash removal from extraction trench #13 and #14. They are halfway through the trench #13.
1100 YECI plans to make conveyance piping connections to the three PGLS sumps and simultaneously develop them.

1150 Break for lunch

1245 Back to the site. Take a drive towards the south end of the OFCA.

1315 YECI begins to set up at north sump of the PGCS

1400 #28 Connect the adaptor to the conveyance piping at the north PGCS sump

1435 #27 Begin development of the north PGCS sump (looking north-northwest)

1440 Bcw indicated conveyance piping will be connected to the sump as soon as development is completed. He said upto 2,000 gallons may be pumped from each of the sumps

1445 While the pumping at north sump is on, YECI begins to set up at central PGCS sump and attach the adaptor to the conveyance piping.

1500 Some problems are being encountered with the pump. YECI will get a

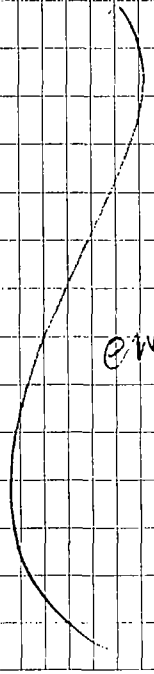
different pump for development. Nearly no water has been pumped so far.

1505 #30 Electric work at the north PGCS sump (looking west)

1515 #31 Conveyance piping being placed for sump connection at the central PGCS sump (looking north)

1545 #32 Begin conveyance piping fusing at the south PGCS sump location. (Looking west)

1635 off site



0845 onsite
Weather: sunny; 25°F
Meet up with Ben. HTI continues to work on the bentonite feed system which clogged up again after going only 5 feet. So far 150 feet or so of barrier wall has been installed. HTI might begin pre-trenching/trash removal & extraction trench 14 and complete extraction trench 13. YECI will continue to work on connecting conveyance piping to the PGCS sumps and sump development activities.
0915 YECI setting up at north PGCS sump. They are having lot of problems with the pump. All pumped water will be transfered into a 4000-gallon baker tank.
1000 YECI completes conveyance piping connection to the north PGCS sump. Enough water was pumped out of the excavation to facilitate hook-up. Development of the sump will be done later

1020 Set up at central PGCS sump location and begin excavating
1035 #33 Excavating at the central PGCS sump (looking north)
1050 #34 water is being pumped into the baker tank at the central PGCS sump (looking southwest)
1110 During excavation, the sump #35 casing was accidently bent and some electrical piping was snapped. HTI crew is on hand to assess the situation. Will have to excavate further down to assess if there has been any damage to the PGCS extraction piping. HTI will come back with a bigger pump and will try to dewater the hole first.
1145 Ben said the 6" extraction trench piping is connected to 4" vertical steel casing with the help of a reducer. Ben indicated the snap may have occured at the reducer. Will be able to tell exactly

what happened after the dewatering and further excavation.

1205 Break for lunch

1255 Back to the site. Meet up with HTI. They will continue to pre-excavate extraction trench 13 and 14 this afternoon. Will probably start the barrier wall by noon tomorrow.

1330 YECI is setting up at the south PGCS sump location to connect conveyance piping

1345 #36 YECI excavating and dewatering the south PGCS sump to facilitate conveyance piping hook-up. (looking north)

1420 #1, #2 YECI hooking up the conveyance piping to the south PGCS sump.

1445 Begin to backfill

1515 off site

End

0845 On site

Weather cloudy, 33°F, breezy

Meet up with Bob. YECI will basically be doing some patch-up work. They installed septic right outside the treatment bldg yesterday. They were not able to pump the central PGCS sump excavation dry to assess the situation. Nothing would be done today in that matter.

HTI was able to set piping yesterday and installed approx. 150' of barrier wall. Due to overnight rain, storm water has pooled at various trenched locations. As HTI moves along with barrier wall, they will pump this water away from the trenched area. Near the former KP building location, HTI put in a temporary drain pipe along the chain link fence in order to avoid washing away of the fence.

Work by contractors will begin

shortly.

0915 Go over by OECA to check up on HTI. They have not yet wrapped up pre-excavation of trench #13 (still about 30' to go). They have not even started trench #14.

0935 HTI continues to install barrier.

0955 #3, #4 stormwater was being pumped away from trenched locations

1005 Drums excavated from the #5 trenching / pre-excavation activities were temporarily covered with plastic (looking north - northwest)

1010 HTI continues to install #6 barrier wall (looking west)

1035 #7 Dry bentonite being fed through the hopper (looking southwest)

1105 The third roll is close to being done.

1115 Due to some problems with

safety equipment, HTI stops. Will break for early lunch. Will be setting up to attach a new roll after lunch.

1150 Break for lunch

1235 Back to the site.
HTI is not back to the site yet.

1310 Begin to set up to install the barrier wall.

1320 Talked to Sheri. She will be onsite this afternoon.

1350 Met up with Ben. He said treatment system testing will begin on 3/1/97 and continue until 3/21/97.

1415 Go over to OECA. HTI is working #8 on adding the fourth roll. Having #9 some problems.

1520 HTI continues to work on adding the fourth roll for barrier wall. They have not completed or plan to complete trenches 13 and 14 any-time soon due to problems in getting some backfill material from off site.

1550 Jeff told me an electrician on site brought in by HTI to check

on the trencher pump wiring.
1605 Lee told me the electrician is not 40-hr OSHA trained. I indicated EPA does not approve of that. Lee said they had no other option and moreover the electrician is going to be accompanied by H&S officer and will be in the exclusion zone at the most 15 minutes.
1620 Lee said HTI is almost done with adding the fourth panel and will start the well installation tomorrow morning.
1635 off site

end

0855 on site
Weather: partly cloudy, 35°
0910 Sheri on site. Lee said its going to be another hour before HTI can get going. NAPH and HVO3 are being delivered to the site
0920 Begin updating Sheri on various activities at the site. Showed them around the PGCS extraction piping and the central PGCS sump where problems were encountered.
1000 Get ready to go over to DFCA
1020 HTI is having some problems with bentonite feed system.
1040 Addition of fourth panel was made successfully (looking southwest)
1130 HTI is still working on the feed system they have only pumped 15' with the roll.
1155 Break for lunch
1258 Back to the site trailer.
1315 Go out to the landfill area to watch HTI from there.
1420 HTI has moved 30' with the fourth panel. They continue to

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have some minor problems

1500 Talked to Keith Schilling of MW's Des Moines office about confusion in sample IDs for MW-52 and MW-53. He said he will fax their chain-of-custody form to the office for Steve Mxwicka to look at.

1525 Go over to OFCA.

1620 HTI almost done collecting the fourth panel. They will be working on adding the fifth panel today and tomorrow.

1645 off site

end

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0940 on site
weather: cloudy, 50°F
Go over to the Reder Rd junction to see what HTI is doing. Will watch from outside the fence.

0955 The trencher seems to be on hold.

1025 Meet up with Ben. HTI has not gotten going yet due to some minor problems. They would probably get started after lunch.

1040 Told Ben given HTI's progress for the day, I would not check around to see if they get started. Told Ben I would be back Monday.

1055 off site

end

0900 on site
Weather: sunny; 40°F
Meet up with BeW. HTI installed approximately 170 feet (15+70 to 14+00) on saturday and 200 feet (14+00 to 12+00) on sunday

0910 HTI has not started this morning yet. They are on the eighth panel and should be starting soon

0920 YEC1 on site. They would be decorning their equipment this morning and probably got started on the valve vault this afternoon.

1010 Go over the 2/26/97 Spoils Plan Addendum

1025 HTI has still not moved any further this morning

1030 #11 Barrier wall installed near the southwest corner of the DFCA.
#12 Buried waste spoils area (left) and demolition debris mgmt area (right)

1055 HTI sets started for the day
1110 Finish eight pile. Crew set ready for 9th pile.
1120 Talked with Steve M about 2/26/97 Addendum to Spoils plan
1150 Break for lunch
1235 Back to the site. YEC1 has not yet started working on the vault.
1250 HTI still working on adding 9th pile. Lee told me HTI is short-staffed today so things would be slow.
1330 #13 Adding another (9th) pile at the south leg of the barrier wall
1400 #14 YEC1 tries to lift the valve vault with the help of two excavators (looking west)
15.00 YEC1 could not finally lift the vault and decided they would have to build a ramp and drag the vault to the desired location.

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1550 HTI still has not moved any
#15 further with the 9th well.
Talked to Ben. Apparently, the
joint between 8th and 9th will
came apart. HTI is currently
shut down. Ben said he is
going to meet with HTI shortly
to find out exactly what
happened and how they can
proceed further.

1610 Two tasks were completed by
Bowen today. Venting was
provided to the compressor
room and carbon canisters
were activated with clean
water.

1705 off site

2nd

Derek Rupani 3-4-97 151

0845 On site
Weather - partly cloudy; 40°F
Meet up with Ben. HTI will
continue with the wall this after-
noon. They will leave the gap
between the two walls for now
and close it later. A labor inten-
sive procedure is involved in manufac-
turing these "closers" for HTI
YECI has moved the vault to
the desired location and have
just begun excavating
#16 Bowen setting up to sterilize
the H_2O_2 trunk and associated
fittings. Bottoms of the building
are covered with plastic to avoid
splashing of nitric acid. Used
nitric acid will be contained
in the black vertical trunk.
Ben said HTI might develop
#17 the PGCS sumps today and install
the well caps.
0945 YECI begin installing steel sheetings
#18? to facilitate vault installation
#19

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1030 YECI is having lot of problems in excavating inspite of shorings Decide to stop for now and come up with different procedure.
1045 Ben indicated YECI & HTI might work on the central PGCS sump.
1055 HTI continues to install the well caps on north and south PGCS sumps they will not develop the sumps today.
1140 HTI will not be able to get the trencher back in the ground until late tomorrow.
1155 Called Sheri and gave her an update. Requested filming to be cancelled for tomorrow.
12.10 Break for lunch
1255 Back to the site. Go over by HTI. They continue to work on the trencher
1330 the trencher
#21 HTI working on the barrier wall trencher after a mob between 8th and 9th well.
1410 (looking north)
#22 HTI installed a well cap at the

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north PGCS sump (looking southwest)
1450 HTI completed installing well cap at the south PGCS sump
1500 YECI is going to finish up some minor tasks tomorrow and work on the central PGCS sump
1530 Bowen & Keegan Environmental continue to work on sterilization of peroxide system.
1540 Lee and Ben offsite for 8-hr refresher.
1545 Armelle gave a copy of water level measurements which were conducted related to PGCS PSVP

Well/Piezometer	Depth to water from TOC
MW3	3.71
MW4	4.97
MW11	4.70
P23	4.81
P24	3.24
P25	3.35
P26	3.19
P27	6.83

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	P28	8.87
	P40	4.89
	P41	4.00

1550 Called Sheri and left a message for tomorrow's plan.

1610 off site

end

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3/8/97

155

1040 on site

Weather sunny, 40°F

HTI has rolled about 120' of the 4th roll. About 8' to go on this roll, there was some trouble with the bentonite feed system.

1130 HTI continues to work on the feed system of the trencher

1215 HTI breaks for lunch

Pete Vogt on site today. Lee told me HTI has solved the problems and will begin after lunch. Lee said if HTI progresses enough by the end of the day, they may take tomorrow off.

1250 HTI still not able to move. They will be changing the roll soon.

1345 Decided to leave site since HTI does not seems to make any progress. Told Ben and Lee to keep me posted.

end

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0845 On site
Weather: sunny; 40°F
Ben told me HTI came to agreement with the ISO union. Right now, HTI is in the process of signing in the union guys. HTI will soon begin installing the 10th well. YECI is not on site yet.

0915 Lee and Ben will soon go into a training for peroxide unit operation.

0945 HTI still not on yet. They had changed the well yesterday and have not moved since then.

0955 Called Steve and Sheri and left messages with the update.

1010 #23 Site water pump from Pure pumps being transferred from one tank to another tank through a two-carbon and a filter unit prior to testing and disposal.

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1030 #24 Approx 5' to 6' wide path was left between 6th and 7th well (looking north)

1055 HTI begins installing the well. After 5' or so, they stop for bentonite feed

1205 Break for lunch

1310 HTI continues with well installation. Ben said YECI is on site now and will set up to install the valves for discharge system. They have decided to do away with the vault and will just bury the valves like in place trench piping.

1350 HTI has moved 15' with the #25 10th well. (looking north)

1420 HTI is on a hold for some reason

1430 Go back to Ben at the trailer. He goes in the exclusion zone to find out from HTI what's wrong

1455 Ben came back and informed me that they have a problem with O-rings of the feed hose. Don't know how it's going to take to fix today.

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1535 Ben indicated he believes HTI is not going to be able to do any wall today

1600 off site

end

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3-11-97

0900 on site
Weather sunny ; 35°F
HTI still has not moved any distance with the wall. Arnelle told me they will be starting up again shortly.

0945 HTI begins wall installation

1035 HTI continues wall installation

1045 # 26 Barrier wall installation at the SE corner of OFCA (looking north)

1120 Finish up this wall and begin setting set up for wall change.

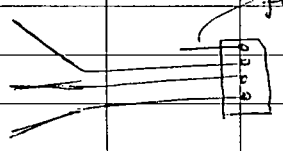
1215 Break for lunch

1315 Back to the site. HTI continues to do the wall change. Will put on 11th wall

1345 YECI is struggling to install the valves without the vault. The conditions are extremely difficult because of mud and wet soils. The area has become extremely difficult to maneuver.

1400 YECI will be burying the valves several feet north of the original vault location. So far they have

installed one of the discharge lines into the valve location.



1530 HTI completed addition of 11th 2011 with some problems. They also backfilled areas of the wall prior to this function. Will start shortly.

#27 HTI installing barrier wall at the SE corner of OFCA (looking west)

1610 #28 YECI working on the discharge system near the PGICS extraction trench (looking north)

1625 HTI has moved about 6 feet with the 11th 2011.

1630 Tom Fronan of ACS told me he would like to walk me through his construction plans for storm water mgmt system sometime next week

1635 Pete Vast is onsite and watching the HTI crew.

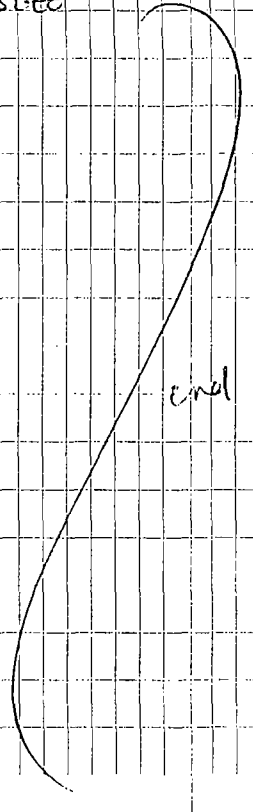
(Cont'd. in Field Book #156)

c/s mK Rupani
3-11-97

1645 HTI hit some big pieces of rock and lost some teeth in the trencher. Shut down for the day

1650 YECI has wrapped up for the day. They have installed discharge piping all the way up to the PGCS trench.

1710 off site



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3-12-97

0900 onsite
weather: partly cloudy, 35°F
HTI continues to install the 11th well. Start-up work inside the treatment building continues
0940 # 29 YECI continues to install the discharge piping south/east of the PGCS trench. (looking west)
1120 # 30 Montgomery Watson personnel conducting perimeter air monitoring during barrier wall installation (looking south-west)
1125 HTI has gone about 40' with the 11th well. They continue to have minor problems with the trencher. They encountered some rocks mixed in with clay.
1140 # 31 YECI continues to work on the effluent discharge valve trench.
1205 Break for lunch
1300 Back to the site. HTI is still on hold. Sand trucks are

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3-12-97

delivering sand to the OFCA.
1310 Called Sheid and Steve and gave them updates.
1335 YECI continues to do pressure testing of the discharge lines.
1435 YECI is struggling with pressure testing. HTI still has not gotten it going yet.
1505 YECI begins to put together some valve assemblies (total of 4) to be put in ground tomorrow.
1585 HTI has not made any progress. They are trying to drive rod here to avoid hitting rocks.
1620 off site.

end

1030 on site (Got in late due to car problems)
Weather: sunny, 35°F, windy
Axmalle came by and told me HTI is still trying to come up with a solution to avoid fitting nicks underground. In the meantime, they will get started on doing extraction well #12 this afternoon.
YECI continues to work on the discharge system valves.
MontgomeryWatson has two engineers on site from Salt Lake City office to review the system start-up process.
1140 #32 YECI installing the effluent discharge system valve assembly
1215 Break for lunch
1315 Back to the site. HTI continues to fix the barrier wall trencher. Apparently, they will begin installing the extraction well #12 and #13 this afternoon.
1345 Peporter Axm Smith stopped by and asked a few questions.

1430 #33 YECI installing the manual valve assembly
1510 HTI begins to pre-trench and backfill with sand at extraction trench #13
1540 #34 site water is being disposed off in the 20,000-gallon baker tank after treatment.
1550 #35, #36 YECI completes installation of manifold and valve assembly for the discharge system.
1625 HTI continues to do pre-trenching at extraction trench #13
Ben told me Joe Adams of MW is onsite today.
Ben also indicated that they have a total of five 20,000-gallon Baker tanks onsite to hold the site water after treatment and that they are eagerly waiting to get EPA's approval on discharge sampling plan. They have a total of 40,000 gallons accumulated so far.
1640 off site

end

0915 on site
HTI has made no progress with the barrier wall the trencher is still at the corner of Colfax. HTI is setting set up to do extraction trench #13. YECI has left for the weekend and they will be back Monday.

0945 Pick up the TIMES newspaper and check up on the article written by Scott Smith

0955 Met up with Lee and Ben. Todd is also on site today. They are going through a 4-hr U.V. Oxidation training. Todd indicated he has no idea on barrier wall progress. As far as he knows, HTI is supposed to keep working on the trencher and get the barrier wall installation going as soon as possible.

1015 Go over to the landfill area to check up on HTI. They are

set up at trench #13 but seem like be on hold due to some equipment troubles.

1045 Talked with Steve regarding various issues. He asked to call Pete Vagt directly to find out about sampling schedule.

1120 Called Pete Vagt. He confirmed the sampling schedule for the week of March 24, 1997.

1135 Called Steve M and confirmed the sampling schedule.

1210 Break for lunch

1310 Back to the site. Lee, Ben and Todd are still in training. Lee came by and told me HTI is done for the day. They have had a major breakdown in the extraction trench machine.

1345 Waited to get all the info on start-up activities inside the treatment bldg but Ben said he would rather sit down with me on Monday.

1400 Leave site to get oil change on

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the truck and check around to see if I can get the slide film as Sheri had requested

1530 Head home

end

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0915 On site
Weather cloudy, cold, 32°F
HTI did not do any work over the weekend and yesterday. Ben told me YECI, with the help of HTI, managed to repair the North PGCS sump and currently are in the process of repairing the central PGCS sump. HTI may begin barrier wall installation tomorrow sunk as far as extraction wells are concerned, no schedule is known as of yet.

1150 #1 YECI is using the vac truck to keep the excavation dry (looking north east)

1010 #2 YECI is repairing the central PGCS sump (looking north)

1030 Meet up with Ben to talk about progress so far with the treatment system. Ben gave me a written schedule which was followed during the system startup activities.

1110 #3 YECI completes the repair of the central PCCS sump (looking northeast) with the exception of surface completion and backfilling

1130 Break for lunch

1215 Back to the site

1230 #4 YECI completed the installation of manifold / discharge valve assembly (looking west)

1235 Ben indicated they have approx. 80000 gallons of treated site water waiting to be disposed off - they would also generate 43,000 gallons/day during 72-hr site water testing

1245 Prey (YECI) should wrap up their work today

1250 Tom Froman will meet with me soon to discuss his stormwater construction plans.

1310 Go over to Tom Froman's office. He explained to me his construction plans and also gave me

a copy of construction drawings

1400 Leave for office

end

0900 On site

Weather: sunny; 40°F

Meet up with Lee. HTI will not be able to do any intrusive work today. Probably tomorrow they might get started. This morning or yesterday afternoon, Ben and Tom Froman of ACS had traversed and marked with a spray paint the barrier wall alignment inside the plant. Midwest Material Service (MMS) of Hammond, Indiana is onsite today to begin pre-trenching along the barrier wall alignment inside the plant. Ron MacFarlane of MMS is supervising the digging operations. He is also responsible for air monitoring. Ben had indicated that operation would take 2 to 3 days.

0940 #5 MMS begins pre-trenching inside the plant. The pre-trenching would consist of digging 4 to 6 feet deep and backfilling it with excavated materials. The objective of this operation is to see if there are any drums / obstructions etc. along barrier wall alignment.

1000 #6 Some debris being excavated during pre-trenching. Ben indicated that during this operation, they will note the locations and depths where any debris, rock or other materials other than native or backfill sand is encountered. This would help HTI to do only selective pre-excavation prior to barrier wall installation.

1015 Ben said VESI is going to demob from the site today at least for now. They are in the process of cleaning all their equipment. The water is being dewatered

and the soil washings are being moved to the upper aquifer spoils area.

1030 #7 perched water and debris encountered during pre-trenching.

1115 Break for lunch.

1210 Back to the site. Asked Ben ~~that~~ AKR if a dozer will be available next week for Black & Veatch sampling crew.

1220 Continue to pre-trench inside the plant.

1240 #8, #9 Concrete debris encountered during pre-trenching. Moderate odors observed in this area.

1310 Ron told me the readings are increasing as we are moving north. He has been occasionally getting a max reading on HNu - basically spikes but no sustained readings.

1320 #10 First sign of a dozer. This was a crushed drum with residual contents oozing out. The material looked like tar.

1345 M&S continues to encounter debris, concrete and other miscellaneous materials during pre-trenching.

1400 Called Steve and left a message.

1410 Called Steve and updated him on the pre-trenching operation.

1430 Leave for the airport.

end

1230 Arrive at site. Site trailer locked. Appeared that Montgomery Watson was out for lunch. Drive to barrier wall work site in the Offsite Containment Area. Nothing is happening with the trenching, but workers are loading slurry into smaller tank trailers.

1315 Ben and Lee arrive at site from lunch. Site in at site trailer. Day is sunny about 50°.

1330 Walk from site trailer to the trenching work along the North side of the plant. Had encountered drums (2) and scrap metal. Midwest Excavation is digging to about 5 feet below land surface, and then pushing soil back into the trench. Will probably work over to Colfax Road by end of day.

1345 Drive with Lee over to the barrier wall machine, which is idle. Crew members of HTI says will starting in about 1 hours.

1410 Back to site trailer to

wait for messages. Leave site for better phone.

1440 Back at site. Walk over to the trenching along North side of plant. Saw drum lid and water at about 2 to 3 feet b/s. Distinct volatile odor. Backhoe operator has begun backfilling the trench. Head over to the barrier wall trencher.

1515 Machine is idle. Crew working on setting up the machine. Machine is turned on and about 1 foot of HDPE is placed before machine is shut down. Apparently the cutting and placement box is not functioning properly.

1600 HTI is talking about pulling the box out of the ground and inspecting it for problems. Begin to remove hoses. Large group from Montgomery Watson here along with HTI management to observe activity.

1640 Leave site

0900 On site
Weather: sunny; 50°F
MMS is working on the pre-trenching inside the plant.

0930 MMS completes trenching. Todd indicated he will ask MMS to do some grading work / ditch work around the treatment bldg but no spoils will be generated. Todd said he will give me a copy of the findings during trenching as provided by MMS later. Basically, barrier wall will be installed to go around the down area as indicated by Todd.

0945 Go over to OECA to check up on HTI.

1000 #10 HTI begins installing extraction well/trench #13.

1015 HTI down for a few minutes due to some problems with the trencher.

1105 HTI is still down - MMS

continues to do grading / ditch work around the treatment bldg.

#11, #12 1130 HTI continues to fix problems with the barrier wall trencher.

1135 HTI said they might be able to get started with extraction well/trench work early afternoon.

1200 Break for lunch

1245 Back to the site. HTI is still on lunch.

1254 MMS continue to work around the treatment bldg.

1315 MMS constructed drainage swales #13 around the treatment bldg.
#14

1335 #15 The septic tank manhole was protected with four steel columns set in concrete.

1345 HTI indicated that it will be two to three hours before they can get going with the extraction well. Regarding barrier wall trencher, they are going to have a structural Engineer

come out today and take a look at the trenches.

1350 Called Steve and Sheri and gave them an update. left a message for Sheri

1400 Leave site

end

0915 on site

Weather: cloudy, 35°F

Lee told me HTI installed extraction wells #12 and #13 between last friday and the weekend. They plan to install couple of more extraction wells today. Sampling crew is on site and is taking water levels and will start sampling tomorrow.

0940 Called Steve and talked about sampling event two week.

1000 Jeff Kimsby, Arnell, Phil Smith, Mark and John of MW are onsite for the sampling event. Jeff said they will download wells water level sometime this afternoon.

1030 #16 MMSI completed the drainage swale on Friday along the ACS fence (looking south)

1045 Go over to OECA. HTI continues to set up at extraction well #15

1100 Taking water level measurement #17 at AFMW-4D. water level was at 13.5' and depth of well was

41.0' from the top of casing.

1130 Break for Lunch

1215 Back to the site

1225 HTI is still working on the extraction well trenches. Lee told me that approx 700 gallons from the south PGCS sump. Ben indicated that during repair work, the north and central sumps were pumped for more than 20,000 gallons combined and that will suffice. No more development activities are planned for these sumps.

1310 Go over to the landfill to take water levels on piezometers. Measurements will be taken by Phil Smith. MW sampling crew is trying to figure out where would they get hold of landfill well keys since they were not sure if city consultant was notified regarding today's event.

	Well/Piezometer	Water Level (feet)
1340	P-13	16.30'
1350	P-16	13.80'
1355	P-17	20.29'
1400	Ron Cooper stopped by and he can get the keys to the landfill wells from his supervisor who will get here shortly.	
1415	P-15	7.52'
1440	City supervisor stopped by with keys. Began taking measurements.	
#18	M-1S	4.47'
	M-1D	13.27'
1450	M-4S	3.15'
#19	M-4D	8.61'
#20	MW-3S appeared to be damaged. No water levels could be taken.	
1505	#21 M-5S	4.11'
	M-5D	7.43'
1520	#22 M-3S	1.33'
	M-3D	7.36'

The wells M-3S and M-3D were submerged under a standing pool of water.

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1530 #23 { M-2S 6.91
M-2D 12.22

1540 P-18 7.69

1545 Back to the trailer.

1600 I had seen some leaks in the clarifier tank and water was flowing to the floor sump. Mentioned to Ben about this. Ben said the leak is due to manufacturer's defect and will be fixed shortly.

1620 HTI begins installation of extraction well #16 just south of the OFCA entrance by the railroad tracks.

1640 HTI stops. Dont know what the reason for hold up is.

1705 HTI still trying to fix the trenches.

1715 Leave site

end

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0740 On site
Weather: drizzling, cold, 40°F
Steve M, Bal Berna and Rob Lantz of B&V are also on site. Today we will begin second quarterly sampling

0800 Begin unloading all sampling equipment and coolers into the treatment bldg. Steve M gave a copy of all split wells list to the sampling crews.

0810 Go over to OFCA to check on HTI #24 HTI is in the process of installing EW #16

0840 #1, #2 HTI almost done with EW #16

0850 #3 HTI completes the EW #16

0910 Picked up some sampling supplies from the trailer and dropped off at the treatment bldg. where sampling crews set up.

0925 Met with Tom Fromen. He said MMS will begin stormwater construction tomorrow.

0940 HTI will begin EW#15 sometime this afternoon

0955 Begin labelling the sample tags. Bal and Rob out with sampling crews. The split samples will be taken at MW-40 and MW-42 later today.

1115 Scott Radley from B&V Philly office is on site

1200 Leave site to buy some ice, vermiculite and disposable cameras.

1250 Back to the site. All sampling crews are back to the bldg.

1300 Leave for lunch

1350 Back to the site. Sheri & USEPA on site. There was a lot of confusion regarding sampling of landfill wells. Jeff Ramsby talk with Ron Cooper of city of Lingfield and scheduled the sampling on 3/27/97 at 8:30 AM.

1430 Discussed a number of issues

with Sheri such as drums, sampling, discharge approval, etc.

1600 Sheri off site

1605 Go over to OFCA. HTI is in the process of installing EW#15

1640 #4 HTI continues to sample AW2 install the EW #15.

1700 Drop off SOP and H&S field copy with Scott Radley who is overseeing sampling crew is at MW-7.

1720 Back to HTI. They have completed #5 50' of the extraction well #15.

1730 HTI also continues to work on the #6 barrier wall trencher

1735 #7 After a snap at SE corner of OFCA, HTI will begin barrier wall installation at this point.

1800 HTI completes EW-#15.

1810 Leave the site

end

0800 onsite
Weather: sunny; 45°F
HTI is getting ready to put the barrier wall trencher in the ground and should begin barrier wall installation sometime this afternoon. Also, this morning HTI will set up to do EW #10 which might need some prior debris removed. Lee said they are still working on installation of pumps inside the PGICS sumps. Sampling crews are already onsite.

0818 Go over to OFCA - HTI continues to work on the barrier wall trencher.

0955 Begin moving the extraction well trencher over to EW #10 location inside the ACS plant

1030 HTI setting up the barrier wall trencher

1050 HTI begins barrier wall #8 installation at the SE corner of OFCA

1135 HTI has installed 30 feet of #9 barrier wall

1155 Break for lunch

1250 Back to the site.

1330 Rob stopped by and asked me to co-ordinate the sample handling and sample shipment activities. Following samples have been collected so far:

1) MW 28 97-2804501 GW01 5-164668-72, 73
3/25/97 1245 (GW sample AKR not collected)

2) MW23 97-2804513 GW13 5-164496-88, 5-164562, 63
3/26/97 0900

3) MW40 97-2804512 GW12 5-164556-61
3/26/97 1215

4) MW51 97-2804502 GW02 5-164674-79
3/26/97

1415 Go over by EW #10 where HTI is pre-excavating #10. All excavated materials are going into the upper #12 aquifer spoils area

1430 Barrier wall installation on hold due to some equipment

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breakdown.

1520 Go over by the bldg to help out with sampling paperwork

⑤ Prepare a trip blank.

R01 AKR ~~TB01~~ 97ZB04TB01 5-164402, 03
3/26/97 1540

⑥ MW42 97ZB04S03 GW03
5-164680-85
3/26/97 1515

1630 Go over to OFCA. HTI continues to
#13 install barrier wall along Colfax.
Also noticed some of the Colfax sand is being taken over to EW#10 to be used as backfill subsequent to debris removal.

1645 Due to some equipment trouble, barrier wall installation stops after about 80 feet of this wall.

1655 HTI continues to backfill and prepare for EW#10.

1658 Called CRL to see if Rob had arrived with the samples

1725 #14 Begin installing EW#10 well sump at the east end.

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1800 Go over to the bldg and help Scott ~~SEO~~ AKR collect the rinsate blanks

⑦ ~~RB01~~ AKR R02 3/26/97 1800 5-164410-415

1820 #15, #16 HTI almost done with EW10

1830 Leave site

end

0800 On site
Weather sunny; 60°F
Ben told me HTI is currently
bent down as far as barrier
wall goes. They will continue
to do the extraction wells
#17 and #18 today.

0825 Sheri of USEPA on site. Go over
to M-15 where sampling
activities are going on
#17 0850 sampling at M-15
Drive around with Sheri to
all the landfill wells. M-35
appeared to be in a pool of
water. Discuss with RVC and
Sheri the appropriateness of
sampling M-35 in such
circumstances.

0915 Called up State to get his
opinion. He said as long as
well construction is good and
impact the standing water
should not make any difference
There may be question marks
if the water level inside the

well is same as standing water
level. Sheri said she will discuss
with Lucerne before making a
decision on M-35 or an alternative
well M-55.

1000 G.C. over by HTI where they are
preparing for EW#18

1010 #18 Measuring the length for
EW18.

1030 Go over by the treatment bldg
to help out sampling crew.

(9)	MW10C	GW04	SO4	3/27/97	0840
	S-164686-91				
(8)	M-15	GW05	SO5	3/27/97	1050
	S-164692-97				
(10)	M-4D	GW06	SO6	3/27/97	1045
	S-164698-99, S-164700, S-164895,				
	S-164420-21				

1200 HTI begins installation of EW18

1225 #19 Installing EW18 just north
of the drum area. No debris or
drums were encountered during
pre-trenching of the trench.

1240 Ben told HTI is going to begin barrier wall only by Tuesday (4/1/97) of next week. Over the weekend they will have only one crew onsite trying to fix the barrier wall trencher.

1255 #20 HTI close to finishing EW18.

1310 Leave for lunch & pick up some supplies

1405 Back to the site.

(11) M-45 1210 3/27/97 510 GW10
5-164896-98, 5-164679-700,
5-164502

(12) MW-14 1422 3/27/97 508 GW08
5-164428-35

(13) ~~MW~~ M-35 1215 3/27/97 509 GW09
5-164497-99, 5-164434-35
5-164501

(14) MW-48 1510 3/27/97 507 GW07
5-164055-58, 5-164424-25
5-164426-27, 5-164059-62
5-164051-54, 5-164422-23

(15) MW-9 1634 3/27/97 ~~GW0~~ GW11
5-164551-55, 5-164899

(16) ~~TB07~~ AKR R03 1600 3/27/97 5-164490-91
R04 ~~TB03~~ AKR 1600 3/27/97 5-164492-93
R05 ~~TB04~~ AKR 1600 3/27/97 5-164494-95
R06 ~~TB05~~ AKR 1600 3/27/97 5-164496-97
R07 ~~TB06~~ AKR 1600 3/27/97 5-164498-99

1800 Meet up with Ben. He said HTI completed EW18 this afternoon and is in the process of completing EW17. I could not oversee HTI's operations due to sampling event.

1805 Jeff of NWW told me they cannot sample MW-6 since it is inside the landfill and landfill is closed. Will sample MW-6 tomorrow.

1835 Leave site to drop off samples at Fedex location in South Holland.

end

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0830 on site
Weather: rainy, 45°F
Today we are here to complete quarterly sampling event. Two remaining wells MW-15 & MW-6 will be done today. B&V will split MW-6 with Montgomery Watson with a duplicate collected at the same location.
0900 Landfill is closed. MW-6 is inside the landfill waiting for city personnel to come out and open the gate.
0930 Steve M leaves the site.
0935 Told Lilian (sampling personnel for next week's residential well sampling) that Bal and Rob will be onsite Monday morning to oversee the ~~split~~ AKR event and collect splits.
1000 Go out to the landfill to do MW-6 and MW-15 which is also inside the landfill.
1010 Begin purging at MW-6 inside #20 the landfill

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Time	Temp	S.C.	pH	Turb
1016	13.63°C	4106	6.31	304
1018	12.8°C	4189	6.31	268
1020	12.8°C	4175	6.31	189
1022	14.4°C	4130	6.32	67
1024	14.8°C	4038	6.34	51
1025	14.9°C	4019	6.35	41
1026	14.9°C	4008	6.35	37
1027	14.9°C	4006	6.35	34

1030 Begin sampling MW-6
1110 Complete sampling at MW-6. About 2 gallons of water was purged prior to sampling

(17) MW-6 3/28/97 1030 514 GW14 5-164404-09
(18) Duplicate MW-6 3/28/97 1030 D14 5-150065-70
(19) AKR TB07 3/28/97 1120 TB07 AKR R08 5-164500 / 5-150071
1145 Break for lunch
1240 Leave to go to CRL.
1430 Reach CRL. Bill Seargent told me he has not received any samples

coolers which were shipped yesterday. I showed the air bill. He said he is going to do some checking with Fedex as to what happened.
He said mark all blanks as R01, R02, ... including pinsate and trip Blanks.
1530 Got the four coolers via Fedex.
Told Bill that I will make calls first thing monday morning to find out what happened to the fifth cooler.
1555 Leave for home.

End

ACS ①

MARCH 23 1997 – ACS SITE

10:40 ARRIVE ON SITE

1210 GO TO MW28 w/ MARK + LILLIAN FROM MW

200 ml/min FLOW RATE

TIME	pH	COND	TEMP	TURB
1215	7.43	617	9.97	180
1216	7.28	633	10.0	234
1217	7.27	646	10.15	268
1218	7.27	654	10.35	279
1219	7.28	659	10.17	295
1220	7.27	662	10.59	299

12:25 VOA SAMPLES TAKEN

12:30 MET SAMPLES TAKEN

12:45 AMBER SAMPLES TAKEN

1305 LUNCH

1500 MW-11

TIME	pH	TEMP	COND	TURB
333	6.36	7.78	320	1143
334	6.32	7.89	320	[illegible]
335	6.30	8.01	321	297
336	6.29	8.06	323	265
337	6.29	8.10	324	225
338	6.29	8.13	326	204
339	6.29	8.15	327	177
340	6.29	8.18	329	153

FLOW RATE – 1L/min

ACS ②

TIME	pH	TEMP	COND	TURB
3:41	6.29	8.19	331	135
3:42	6.29	8.21	333	115
3:43	6.30	8.23	334	106
3:44	6.30	8.28	338	94.6
3:45	6.31	8.25	337	90.4

1804 MW-7 100ml/min FLOW RATE

TIME	pH	TEMP °C	COND	TURB
509	9.17	9.86	614	315
510	8.78	10.59	629	288
511	8.48	11.23	647	267
512	8.47	11.14	654	248
513	8.40	11.13	658	238
514	8.35	11.13	663	231

1800 LEAVE SITE

ACS ③

MARCH 26 1997

0700 ARRIVE ON SITE

0715 REVIEWING FIELD OPS.

0725 CHECKING LABELS FOR MW-28 SAMPLES

0745 ONSITE AT MW-31 W/ MARK + LILLIAN

120 ml/min FLOW RATE

TIME	pH	°C	COND	TURB
7:42	7.50	8.16	565	51.2
7:43	7.48	8.57	581	97
7:44	7.41	8.75	597	124
7:45	7.38	8.74	608	129
7:46	7.36	8.81	617	144
7:47	7.35	8.94	632	160
7:48	7.34	8.97	637	166
7:49	SKIPPED			
7:50	7.33	9.12	648	171

0820 CALLED BY PHILADELPHIA

0830 PREPPED ICE FOR COOLERS

0850 ONSITE AT MW-32

200 ml/min FLOW RATE

TIME	pH	°C	COND	TURB
911	8.00	2.29	403	4.8
912	7.57	10.25	438	5.8
913	7.46	10.29	407	22.6
914	7.33	10.33	437	80.4
915	7.30	10.36	494	115.0
916	7.29	10.37	533	155.0
917	7.30	10.41	589	226.0
918	7.30	10.43	614	273.0

NS ④

(MW-32 cont.)

TIME	pH	°C	COND	TURB
919	7.29	10.48	633	310.0
920	7.30	10.54	645	331.0
921	7.29	10.63	653	327.0

0945 PACKING UP & HEADING BACK TO REMEDIATION BUILDING FOR DECON.

1000 SETUP AT MW36 w/ MARK & LILLIAN

1029 OVERSITE AT MW36D 100ml/min FLOW RATE

TIME	pH	°C	COND	TURB
1035	7.96	10.13	213	10.8
1036	7.97	10.16	214	22
1037	7.97	10.13	218	34.1
1038	7.98	10.11	223	42.9
1039	7.97	10.09	228	54.4
1040	7.97	10.08	234	66.4
1041	7.96	10.05	241	74.5
1042	7.95	10.06	245	76.3
1043	7.94	10.06	250	78.2

1128 PACKING UP & HEADING BACK TO REMEDIATION BUILDING FOR DECON

1140 LUNCH

1238 ARRIVE BACK AT SITE

1346 SETUP AT MW30 w/ MARK & LILLIAN

ACS ⑤

1359 HYDROLAB PUMP INITIATED

200ml/min FLOW RATE - CLEAR COLOR

TIME	pH	°C	COND	TURB
2:02	7.14	11.73	4538	
2:04	7.12	11.67	4885	45.5
2:05	7.12	11.90	4775	71.7
2:06	7.12	11.96	4665	97.5
2:07	7.12	12.10	4583	153
2:08	7.13	12.15	4504	169
2:09	7.13	12.26	4421	190
2:10	7.13	12.82	4310	195
2:11	7.14	13.85	4100	227
2:12	7.15	14.32	3950	256
2:13	7.16	14.52	3890	248
2:14	7.16	14.53	3825	246

1440 PACKING UP & HEADING BACK TO REMEDIATION BUILDING FOR DECON

1450 PACKING BLACK & VEATCH SAMPLES. PREPPING TO SENT TO CRL

1402 MW-29 150ml/min FLOW RATE CLEAR COLOR

TIME	pH	°C	COND	TURB
357	7.76	11.03	608	3.5
358	7.76	10.97 11.11	607	4.1
359	7.76	11.58	607	2.9
4:00	7.76	11.11 11.58	607	2.1
4:01	7.75	11.96	631	4.9
4:02	7.76	12.33	631	2.0
4:03	7.76	12.66	631	1.6
4:04	7.76	12.93	631	1.6

ACS (6)

1606 START TESTING. TAKING MSDS SAMPLES
1630 PACK-UP & HEAD BACK FOR DECON
1656 MW34 SETUP
1705 STARTING PUMP
200ml/min FLOW RATE
CLEAR COLOR

TIME	pH	°C	COND	TURB
5:09	7.86	11.51	398	17.8
5:10	7.71	11.33	515	18.7
5:11	7.43	11.09	662	18.5
5:12	7.31	11.01	732	20.5
5:13	7.27	10.97	767	22.3
5:14	7.25	10.97	799	21.9

17:14 START SAMPLING
17:30 PACK-UP + HEAD BACK FOR DECON
18:03 FIELD BLANKS
18:10 LEAVE SITE

ACS (7)

MARCH 27 1997
0700 ARRIVE ON SITE
0742 PREP FOR MW 18
0750 ARRIVE AT MW18
0756 NO PLACE TO HANG HYDROLAB WITH THE EXCEPTION OF MY BELT.
0801 STARTING PUMP
250ml/min FLOW RATE

TIME	pH	°C	COND	TURB
808	6.8	8.66	320	55.7
8:09	6.83	9.24	432	50.6
8:10	6.79	9.75	608	30.7
8:11	6.78	10.07	702	15.5
8:12	6.78	10.26	749	9.8
8:13	6.77	10.37	778	7.3
8:14	6.76	10.40	807	6.0
8:15	6.76	10.43	831	5.1
8:16	6.75	10.47	844	4.4
8:17	6.75	10.50	870	3.5
8:18	6.76	10.50	875	3.7

0818 START SAMPLING
834 FINISHED SAMPLING
0837 PACKUP AND HEAD BACK FOR DECON
0914 ARRIVE AT MW19
0918 STARTING PUMP
300ml/min FLOW RATE
CLEAR COLOR
USED HOSE CLAMP TO REDUCE FLOW FROM 3L/min

ACS (8)

TIME	pH	°C	COND	TURB
9:27	7.44	8.80	4933	19.0
9:28	7.44	8.96	4943	17.4
9:29	7.44	9.43	4957	14.4
9:30	7.44	9.92	4951	11.7
9:31	7.44	10.28	4952	10.0
9:32	7.45	10.55	4946	9.4
9:33	7.45	10.72	4944	8.9

0933 START SAMPLING
0949 FINISH SAMPLING
0955 RETURN FOR DECON
1038 LEAVE FOR MW-22
1043 SETUP AT MW-22
1052 PUMP INITIATED

FLOW RATE = 125ml/min COLOR = CLEAR

TIME	pH	°C	COND	TURB
1058	8.08	12.46	2551	11.9
1059	8.30	11.66	2681	20.6
1100	8.38	11.41	2789	19.6
1101	8.41	11.68	2793	17.0
1102	8.43	11.90	2814	15.9
1103	8.43	12.36	2758	15.4

1103 START SAMPLING
1120 END SAMPLING
1122 PACKING UP + HEAD BACK FOR DECON
1234 LUNCH

ACS (9)

1330 ARRIVE BACK FROM LUNCH
PICKED UP 5 BAGS OF ICE + ZIPLOCK BAGS. DOUBLE BAGGED ICE.
1355 ARRIVE AT MW-14
1405 START PUMP
ORANGE COLOR 125 ml/min FLOW RATE

TIME	pH	°C	COND	TURB
2:12	6.36	8.41	257	542
2:13	6.30	8.42	255	431
2:14	6.23	8.59	243	375
2:15	6.16	8.63	232	346
2:16	6.13	8.78	222	325
2:17	6.13	8.83	222	274
2:18	6.12	8.85	219	243
2:19	6.11	8.92	216	222
2:20	6.10	8.97	214	212
2:21	6.08	9.04	211	205
2:22	6.07	9.08	209	201

14:22 START SAMPLING - SPLIT
1509 FINISH SAMPLING
1609 HEAD BACK FOR DECON
1514 PREPPING LABELS
1607 SETUP AT MW-9 WATER DEPTH 14.27
1618 START PUMP
FLOW RATE - 200ml/min COLOR - LIGHT BROWN

ALS (10)

TIME	pH	°C	COND	TURB
4:25	6.86	12.99	705	126
4:26	6.88	13.55	714	127
4:27	6.88	13.65	712	115
4:28	6.89	13.78	723	108
4:29	6.89	13.89	711	102

1629 START SAMPLING SPRITS

1655 FINISH SAMPLING AND HEADING BACK

1705 LEAVING SITE

ACS

3-25-97

0720 Bal (BSV) arrived site trailer

TASKS: SPLIT SAMPLING (GW)

(MW JEFF TEGROTENHUIS, JASON ROZGONY)

TIME	MW#	PH	CON	TEMP	TURB
1019	~~MW37~~ MW37	6.19	0.142	8.80	-
1025	MW37	6.18	0.139	10.61	-
1030	MW37	6.20	0.139	11.69	-
1035	MW37	6.23	0.144	11.85	-
1040		6.23	0.148	11.65	-
1045		6.19	0.232	7.14	655
1050		6.20	0.247	6.33	327
1052		6.21	0.252	6.23	290
1054		6.23	0.254	6.20	200
1056		6.24	0.267	6.16	162
1058		6.26	0.272	6.14	140
1100		6.28	0.275	6.15	105
1102		6.28	0.271	6.13	105
1104		6.29	0.281	6.13	102

SAMPLE COLLECTED @ 1105

1130 DECON EQP.

1208	MW54	6.87	0.262	9.88	305
1211		6.82	0.263	10.52	295
1214		6.85	0.257	12.39	285
1217		6.85	0.260	13.41	279

SAMPLE COLLECTED @ 1220

1230 DECON EQP.

BSP

3-25-97

TIME	MW#	PH	CON	TEMP	TURB
1455	MW55	7.62	0.701	9.47	53.1
1457	↓	7.61	0.769	9.61	53.2
1500		7.62	0.821	9.69	53.1
1502		7.62	0.835	9.83	52.9
1504	↓	7.62	0.840	10.91	52.5
	SAMPLE COLLECTED @ 1505				
1630	DECON EQP.				
1704	MW08	7.34	0.162	9.95	254
1706		7.43	0.162	10.56	308
1707		7.53	0.161	12.14	350
1712		7.58	0.162	12.40	358
1715		7.60	0.163	12.79	339
1719		7.61	0.161	13.86	317
1721		7.62	0.161	14.22	317
1723		7.62	0.162	14.37	315
1725	↓	7.63	0.163	14.42	312
	SAMPLE COLLECTED @ 1725				
1740	DECON EQP				
1806	BAL LEAVE SITE				

3-26-97

0643 BAL arrived site (B&V)
WEATHER: SUNNY LOW 30's
WIND CALM

TIME	MW#	PH	CON	TEMP	TURB	IN FLOW 200/MIN
0820	MW13	6.84	0.403	6.40	180	
0823		6.84	0.887	6.42	138	
0825		6.84	0.893	6.43	116	
0827		6.84	0.895	6.44	105	
0829		6.83	0.893	6.44	95.8	
0831		6.83	0.893	6.45	90.4	
0833	↓	6.83	0.896	6.46	90.4	
	SAMPLE COLLECTED @ 0833					
0847	DECON EQP.					
	MW52	CON. X 100				
0917	MW52	6.91	1.95	9.41	593	
0920		6.89	1.93	10.02	524	
0923		6.90	1.91	11.62	445	
1015		6.96	1.13	13.69	677	
1018		6.97	1.61	13.83	653	
1020	↓	6.97	1.63	13.64	680	
	SAMPLE COLLECTED @ 1025					
1040	DECON EQP.					
	JEFF & JASON from Mont. Watson will continue to purge & sample.					

3-26-97

TIME	MW#	PH	X100 CON	TEMP	TURB
1118	MW53	7.77	0.485	11.52	700
1128		6.54	1.295	11.22	400
1135		6.53	1.52	11.66	208
1137		6.53	1.51	11.77	160
1139		6.53	1.50	11.84	143
1141		6.54	1.50	11.84	118
1152		6.56	1.50	11.60	56.4
1156		6.56	1.50	11.77	55.6
1158		6.56	1.51	11.78	53.4
	SAMPLE COLLECTED @ 1200				
1215	DECON EQP				
	WEATHER UPDATE: SUNNY HIGH 40's WIND CALM				
1330	BAL @ PLANT DLOG PREP SAMPLE TAGS AND LABELS				
1415	BAL @ MW51 LOCATION FOR SPLIT SAMPLE				
1432	MW51	7.47	0.550	11.29	510
1440		7.24	0.578	13.38	203
1448		7.21	0.573	14.02	124
1450		7.18	0.583	14.20	145
1500		6.85	0.044	14.44	50.0
1502		6.71	0.033	14.63	49.9
1507		6.63	0.034	14.88	45.7
	SPLIT SAMPLE COLLECTED @ 1510				

3-26-97

1540 JEFFERSON DECON EQP.

TIME	MW	PH	X100 CON	TEMP	TURB
1604	MW30	7.86	0.206	11.48	20.0
1608		7.81	0.206	12.49	14.0
1610		7.82	0.202	12.56	13.33
1612		7.82	0.201	12.90	13.34
	SAMPLE COLLECTED @ 1615				
1640	DECON EQP				
1700	START PUMP				
1704	MW33	7.00	0.283	10.34	135.0
1708		6.65	0.375	10.70	153
1711		6.60	0.398	11.42	165
1715		6.57	0.408	11.73	85.64
1718		6.56	0.409	11.85	78.31
1721		6.56	0.410	11.93	65.3
1724		6.55	0.478	11.96	62.3
1726		6.55	0.482	11.98	60.7
	SAMPLE COLLECTED @ 1730				
1800	DECON EQP				
1935	BAL LEAVE SITE, TO WAREHOUSE TO PICK UP MORE SAMPLE BOTTLES.				
1934	BAL @ WAREHOUSE.				
1948	LEAVE WAREHOUSE				

03-27-97

0645 BAL (B&U) ARRIVED SITE

WEATHER: SUNNY, WIND CALM HIGH 40's

TIME	MW#	PH	X100 CON	TEMP	TURB
0758	MW10C	6.88	1.74	10.04	902
0810		6.91	1.84	11.04	807
0814		6.91	1.84	11.42	718
0816		6.91	1.85	11.41	696
0818		6.92	1.85	11.15	623
0826		6.92	1.83	11.07	400
0830		6.92	1.83	11.12	344
0833		6.92	1.80	11.15	322
0835		6.92	1.81	11.19	321
0837	↓	6.92	1.78	11.23	306

SPLIT SAMPLE COLLECTED @ 0840

WATER CLERK

0845 JEFF & JASON (MW) DECON EQP.

0900 BAL @ prepare labels & tag for MW10C

0940 CREW @ LANDFILL @ MW4 WILL COLLECT SPLIT.

1006	MW42	7.76	0.155	14.43	850
1020					470
1024		7.42	0.312	14.77	465
1030		7.29	0.324	14.75	552
1034		7.41	0.427	15.16	38
1036		7.42	0.432	14.83	31.2
1038	↓	7.45	0.432	14.74	31.9

SAMPLE COLLECTED @ 1040 — BB

3/27/96

1105 BAL @ TRAILER PREP LABELS AND TAGS.

JEFF & JASON DECON EQP.

1140 CREW @ MW45 LOCATION

SPLIT SAMPLE WILL BE COLLECTED.

TIME	WELL#	PH	X100 CON	TEMP.	TURB
1147	~~MW45~~ MW45	6.48	0.832	10.61	63.6
1150	~~MW45~~ MW45	6.67	0.838	10.61	58.1
1152	MW45	6.54	0.843	12.88	66.4

1200 WELL WENT DRY,

1210 START SAMPLING

1220 AFTER COLLECTING VOA'S CYANIDE AND HALF OF THE METALS WELL WENT DRY AGAIN. WILL BREAK FOR LUNCH AND COMEBACK TO FINISH SAMPLING.

1322 BACK @ MW45 LOCATION

1332 MW45 SAMPLE COMPLETED.

1345 WILL DECON EQP.

1420 CREW @ MW35

1430 CANNOT SAMPLE WELL (MW35) CASING VENT OR PLUG.

1433 MOVE TO MW48 LOCATION.

3-27-97

	WELL#	PH	X100 CON	TEMP	TURB
TIME	MW 48	6.53	0.369	7.33	61.6
1445		6.53			
1500		6.53	0.360	7.41	41.8
1502		6.53	0.362	7.41	51.3
1504		6.53	0.376	7.43	50.7
1506		6.53	0.375	7.35	44.6
1508		6.52	0.374	7.31	43.0
1510	SAMPLE COLLECTED				42.1
1520	JEFF & JASON DECON EQP.				
1540	BAL PREP SAMPLE TAGS & LABELS.				
1600	STILL WORKING ON TAGS & LABELS				
1630	BAL MOVE TO MW 6				
	MW 6 WILL NOT BE SAMPLE TODAY				
1645	CREW @ MW 49				
1658	MW 49	6.83	0.141	6.74	147
1700		6.57	0.160	6.85	85.0
1702		6.47	0.165	6.82	44.0
1705		6.43	0.205	6.71	29.5
1707		6.43	0.211	6.69	27.5
1709		6.44	0.217	6.67	26.6
	SAMPLE COLLECTED @ 1710				
1730	PREP SAMPLES				
1800	PREP SAMPLES				
1826	LEAVE SITE TO WAREHOUSE				

3-25-97 Robert m Lamp

0700 Arrived onsite Cloudy rainy 45°F

0700-1000 Bal, Steve, Ashok and I got sampling material prepared in the groundwater treatment bldg.

1005 Arrived at MW-21

1007 9.01 ft BTOC water level

1029 Bryan purging at approx 200 ml/min

	Turb	pH	T	Cond
1030	37.3	10.3	10.5	1002
1032	40.8	11.04	10.5	1084
1035	40.9	11.05	10.9	941
1037	38.6	11.04	11.2	921

1056 Done sampling at MW 21

1200 Arrived at MW-16 The well is [illegible] surrounded by 1-2 ft of standing water

1208 Water depth 2.48 ft BTOC

	Turb	pH	T	Cond
	366			
1223	~~450~~	8.49	5.9	450
1225	237	8.28	5.9	570
1227	106	7.43	6.0	1068
1229	46	7.05	6.1	1071
1231	41.2	6.84	6.3	1070
1233	44	6.75	6.4	1070
1235	46.1	6.71	6.5	1075

March 26 1997 Robert Lapp

0700	Arrived onsite				Sunny 45°F
0755	Arrived at MW23 Water				
	level is at 8.76 ft BTOC				
	T	pH	Turb	Cond	
0813	8.8	7.01	692	784	
0815	9.8	7.06	620	785	
0817	11.2	7.06	497	793	
0819	11.7	7.07	452	798	
0821	12.0	7.07	430	800	
0823	12.2	7.07	412	801	
0828	The pump I have fell down some				
	increasing the fluid				
	12.3	7.04	414	816	
0900	Completed sampling MW23				
*	I split sampled MW23				*
0950	Arrived at MW38				
1004	6.3	6.74	off scale		211
	water is orange brown				
1006	6.8	6.64	"		211
	They cleared the line by accelerating				
	the flowrate then lowered the				
	flowrate back down				
1008	7.0	6.50			219
1010	6.7	6.46	665		226
1011	6.9	6.43	331		228

1300	Broke for lunch				
1400	Returned from lunch				
1540	Arrived at MW-24 Water				
	level is at 11.0 ft BTOC				
	T	pH	Turb	cond	
1545	8.8	6.5	252	1132	
1548	8.7	6.77	253	1135	
1550	9.4	6.94	279	1134	
1552	10.9	6.96	266	1139	
1554	11.7	6.98	256	1145	
1555	12.1	7.00	249	1146	
1615	Completed sampling MW24				
1635	Arrived back at the groundwater				
	treatment building				
1656	Arrived at MW39 Water				
	level is at 4.13 ft BTOC				
1713	7.0	6.66	500	1316	
1715	7.9	6.79	315	1368	
1717	8.2	6.79	257	1367	
1719	8.5	6.79	219	1370	
1721	8.6	6.79	198	1371	
1723	8.6	6.80	213	1369	
1750	Collected MW39 Sample				
1805	Left site				

	T	pH	Turb	Cond
1013	7.1	6.42	229	280
1015	7.4	6.40	180	235
1017	7.7	6.40	119	239
1019	7.7	6.40	119	241
1021	7.8	6.41	111	244
1045	Completed sampling at MW 38			
1115	Arrived at MW40			
1130	They are having difficulty starting the generator. They just got it started.			
1131	5.7	6.80	476	143
1133	6.0	6.0	335	144
1135	6	6.7	280	141
1137	6.83	6.8	238	143
1139	7.6	6.50	196	143
1141	8.1	6.48	175	144
1143	7.9	6.48	155	143
1145	7.8	6.46	135	142
1147	8.1	6.47	122	144
1149	8.4	6.47	112	144
1215	Completed sampling at MW40			
	* I split sampled this well *			
1230	Went to lunch			
1300	Back from lunch			
1330	Tagged the MW 23 and MW40 samples			
1400	Arrived at MW41			

	T	pH	Turb	Cond
1403	6.5	7.00	119	302
1405	7.1	6.97	114	296
1407	7.6	6.95	190	295
1409	8.5	6.92	260	294
1411	9.1	6.91	234	297
1413	9.0	6.91	207	303
1425	Completed sampling MW41			
1450	Arrived at MW42			
1504	8.3	6.84	652	1000
1506	8.7	6.89	710	1008
1508	9.4	6.88	763	1012
1510	9.7	6.86	782	1012
1530	Completed sampling MW42			
	* I split sampled this well *			
1545	Returned to the ~~trailer~~ groundwater treatment building. Packed off my samples, turned up the 4 samples collected this day and left for the USEPA CRL laboratory in Chicago downtown			

Robert Lant
3-26-97

3-27-97 Robert Lentz

0700 Arrived on site sunny 50°F

0850 Arrived at MIS Griffith landfill well

0905 Jeff is repairing the Grundfos pump. A wire lead for the pump was severed.

0920 They switched out pumps with the Iowa boys.

	T	pH	Turb	Cond
0926	10.9	6.63	4.7	2153
0928	10.5	6.62	27	2217
0930	11.2	6.62	23.6	2240
0932	11.7	6.62	21.9	2280
0934	11.9	6.62	26.1	2305
0936	12.2	6.63	24.5	2323
0938	12.2	6.63	26.3	2330

0940 Began sampling MIS

1005 Completed sampling MIS

* I split sampled this well *

1030 Jeff measured the water level between MIS and the standing water Difference ~0.15ft

1140 Back at MIS we are preparing to sample. Sheri Brandin just arrived to observe the sampling

	T	pH	Turb	Cond
1143	8.7	6.86	127	988
1145	10.3	6.83	101	977
1147	12.2	6.74	85	979
1149	11.4	6.74	72	1014
1151	12.9	6.73	69	997
1153	11.9	6.73	69	1021
1155	10.1	6.74	74	1036

1230 Completed sampling MIS

* I split sampled this well *

1250 Back for lunch

1330 Back from lunch

1415 Arrived at MW47

1427 Began purging

1429	8.4	7.19	65.0	24.1
1431	8.8	7.32	64.8	22.4
1433	9.0	7.33	65.1	21.9
	T	pH	Cond	Turb
1435	9.2	7.15	66.7	23.1

1445 Completed sampling MW47

1522 Arrived at MW45

1543	6.9	6.82	330	1234
1545	6.8	6.86	76	1274
1547	7.5	6.83	49	1274
1549	8.0	6.84	42	1276
1551	8.3	6.85	38	1289
1553	8.4	6.86	37	1271

1615	Completed sampling They collected a dup	MW-45 at this location
1630 - 1900	Packaged samples	
1900	Left for Fed Ex	

Robert Lund
3-27-97

Letter of Transmittal
BLACK & VEATCH Special Projects Corp.

101 North Wacker Drive, Suite 1100, Chicago, Illinois, 60606, Phone (312) 346-3775, Fax (312) 346-4781

To: Ms. Sheri Bianchin
United States Environmental Protection Agency
77 West Jackson Boulevard (SRW-6J)
Chicago, Illinois 60604

Date: May 27, 1997
From: Steve Mrkvicka
Project: American Chemical Services
Project No.: 71670
File: C.3

We are sending you: [XXX] Attached [ ] Under separate cover via _____

[ ] Preliminary Report
[ ] Final Report
[XXX] Other: Slides of the Barrier Wall Extraction System construction work
[ ] Specifications
[ ] Change Order
[ ] Addendum

These items are transmitted:

[XXX] As requested
[ ] For your approval
[ ] For your information
[ ] For review and comment

Remarks: Enclosed are the slides of the Barrier Wall Extraction System construction work that is undergoing at the American Chemical Services site.

If you have any questions, please call me at 312/683-7849.

American Chemical Services
Work Assignment 80-5PJ7

Copy To: P. Hendrixson, USEPA (w/o enclosures); A. Rupani, BVSPC (w/enclosures)
E. Howard, USEPA (w/6 enclosures)

Signed: _____ May 27, 1997

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BLACK & VEATCH
SPECIAL PROJECTS CORP.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, (312) 346-3775, Fax: (312) 346-4781

USEPA Region 5
American Chemical Services 80-5PJ7

BVSPC Project 71670
BVSPC File C.3
February 26, 1997

Ms. Sheri Bianchin
U.S. Environmental Protection Agency
77 West Jackson Boulevard (HSR-6J)
Chicago, Illinois 60604

Subject: Results of December 1996 Outfall Surface Water Sample

Dear Ms. Bianchin:

Enclosed is a table that shows the results of the outfall surface water sample that was collected by Black & Veatch Special Projects Corp. at the American Chemical Services, Inc., site on December 27, 1996. We collected the sample, which was not split with Montgomery Watson, at your request. We have not enclosed the laboratory analytical data packages with this transmittal; however, I can send the data packages if you want them.

The results indicated the presence of three organic compounds, including chloroethane (2 ug/L), 2-butanone (0.7 J ug/L), and bis(2-chloroethyl)ether (5 ug/L). Chloroethane and bis(2-chloroethyl)ether are contaminants of concern identified in the Record of Decision for remediation; 2-butanone is a common laboratory contaminant. No volatile organic Tentatively Identified Compounds (TICs) were identified; however, two semivolatile organic TICs were identified. The inorganic results do not indicate the presence of significant levels of inorganic analytes.

Please contact me at 312/346-3775 if you have any questions or desire additional information.

Sincerely,

BLACK & VEATCH SPECIAL PROJECTS CORP.

Steve Mrkvicka
Site Manager

Enclosure
cc: P. Hendrixson, USEPA w/o enclosure
E. Howard, USEPA w/o enclosure
A. Rupani, BVSPC w/enclosure

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Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
1,2-Dibromo-3-chloropropene	1 U
1,2,4-Trichlorobenzene	1 U
VOA TICs	0
Semivolatile Organic Compounds	
Phenol	5 U
bis(2-Chloroethyl)ether	**5**
2-Chlorophenol	5 U
2-Methylphenol	5 U
2,2'-oxybis(1-Chloropropane)	5 U
4-Methylphenol	5 U
N-Nitroso-di-n-propylamine	5 U
Hexachloroethane	5 U
Nitrobenzene	5 U
Isophorone	5 U
2-Nitrophenol	5 U
2,4-Dimethylphenol	5 U
bis(2-Chloroethoxy)methane	5 U
2,4-Dichlorophenol	5 U
1,2,4-Trichlorobenzene	5 U
Naphthalene	5 U
4-Chloroaniline	5 U
Hexachlorobutadiene	5 U
4-Chloro-3-methylphenol	5 U
2-Methylnaphthalene	5 U
Hexachlorocyclopentadiene	5 U
2,4,6-Trichlorophenol	5 U
2,4,5-Trichlorophenol	20 U
2-Chloronaphthalene	5 U
2-Nitroaniline	20 U
Dimethylphthalate	5 U
Acenaphthylene	5 U
2,6-Dinitrotoluene	5 U
3-Nitroaniline	20 U
Acenaphthene	5 U
2,4-Dinitrophenol	20 U
4-Nitrophenol	20 U
Dibenzofuran	5 U
2,4-Dinitrotoluene	5 U
Diethylphthalate	5 U
4-Chlorophenyl-phenylether	5 U

Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
p,p'-DDT	0.020 U
Methoxychlor	0.10 U
Endrin Ketone	0.020 U
Endrin Aldehyde	0.020 U
Alpha-chlordane	0.010 U
Gamma-chlordane	0.010 U
Toxaphene	1.0 U
PCBs	
Aroclor 1016	0.20 U
Aroclor 1221	0.40 U
Aroclor 1232	0.20 U
Aroclor 1242	0.20 U
Aroclor 1248	0.20 U
Aroclor 1254	0.20 U
Aroclor 1260	0.20 U
Inorganic Analytes	
Aluminum	320
Antimony	1 U
Arsenic	4 U
Barium	118
Beryllium	1 U
Cadmium	0.2 U
Calcium	127,000
Chromium	10 U
Cobalt	6 U
Copper	6 U
Iron	1,060
Lead	2 U
Magnesium	35,500
Manganese	429
Mercury	0.1 U
Nickel	20 U
Potassium	21,100
Selenium	4 U
Silver	6 U
Sodium	36,000
Thallium	2 U
Vanadium	5 U
Zinc	40 U
Cyanide	8 U

Letter of Transmittal
Black & Veatch Special Projects Corp.

101 North Wacker Drive, Suite 1100, Chicago, Illinois, 60606, Phone (312) 346-3775, Fax (312) 346-4781

To: Ms. Sheri Bianchin
United States Environmental Protection Agency
77 West Jackson Boulevard (SRW-6J)
Chicago, Illinois 60604

Date: 15-Oct-97
From: Steve Mrkvicka
Project: American Chemical Services
Project No.: 71670
File: C.3

We are sending you: [XXX] Attached [ ] Under separate cover via

[ ] Preliminary Report
[ ] Final Report
[XXX] Other: Field oversight summary report September 23 through October 2, 1997
[ ] Specifications
[ ] Change Order
[ ] Addendum

These items are transmitted:

[ ] As requested
[ ] For your approval
[XXX] For your information
[ ] For review and comment

Remarks: Enclosed is the field oversight summary report for the field activities that BVSPC provided oversight on behalf of the USEPA at the American Chemical Services NPL site, Griffith , Indiana. Activities occurred during the period from September 23, 1997, through October 2, 1997.

Please call me at 312/683-7849 if you have any questions.

American Chemical Services
Work Assignment 80-5PJ7

Copy To: P. Hendrixson, USEPA (w/o enclosure); E. Howard, USEPA (w/o enclosure)

Signed: 15-Oct-97

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USEPA/ARCS V
BVSPC Oversight Summary

Reporting Period: September 23 to October 2, 1997 Hours Worked: 208
Site Name/Location: ACS/Griffith, IN BVSPC Project No.: 71670.600
USEPA Work Assignment Manager: Sheri Bianchin, RPM
Site Manager: Steve Mrkvicka

Personnel Summary Affiliation	No. of Personnel	Responsibility
Ben McGeachy, Lee Orsorz, Tom Blair, Montgomery Watson, Addison, IL	3	Respondent's General Contractor
Jeff Ramsby and Mark Pauli, Montgomery-Watson, Madison, WI	2	Field Sampling Crew (for quarterly groundwater sampling)
Carter Helm, Steve Mrkvicka, BVSPC	2	USEPA Oversight Contractor

Summary of field activities:

During the weeks of September 23 and September 30, 1997, Montgomery Watson conducted quarterly groundwater sampling. During this reporting period, Montgomery Watson also completed the installation of piezometers along the Barrier Wall Extraction System (BWES). The remaining pairs were installed after the BWES site restoration activities were completed.

Quarterly Groundwater Sampling

One Montgomery Watson field sampling crew sampled 47 residential and monitoring wells within the ACS site boundaries, the wetland area, the City of Griffith Landfill, and the areas that lie north, south, and east of the ACS facility. BVSPC's two-man crew oversaw the field activities and collected split samples from 18 of the wells. One BVSPC representative accompanied the sampling team to ensure that proper sampling techniques were conducted and the SOP for low flow groundwater sampling was followed by the sampling team. The BVSPC representative also collected the appropriate EPA split sample. Another BVSPC representative maintained custody of previously collected samples, which were stored and packaged at the Perimeter

Groundwater Containment System treatment building. This BVSPC employee also did sample paperwork such as the chain of custody forms, custody seals, and sample tagging, in addition to the overview of Montgomery Watson sample paperwork procedures and their decontamination set-up and routine.

Montgomery Watson collected 47 groundwater samples, 5 duplicate samples, 3 matrix spike/matrix spike duplicate (MS/MSD) samples, and 5 field equipment rinsate blanks. Samples were collected from 42 monitoring wells, including four Town of Griffith Landfill monitoring wells (M-1S, M-3S, M-4S, and M-4D), and six residential wells, including 1002 Reder Road, 1014 South Arbogast, 1130 Reder Road (Augsten home), 1033 Reder Road, 430 East Avenue H, and 1130 Reder Road (Maze home). The monitoring wells sampled by Montgomery Watson are listed in the field logbook notes, which are attached to this report.

BVSPC, on behalf of EPA, collected four Upper Aquifer split samples (MW-15, MW-12, MW-38, and MW-29) and four Lower Aquifer split samples (MW-8, MW-23, MW-51, and MW-10C). BVSPC collected split samples from the four Town of Griffith Landfill monitoring wells (M-1S, M-3S, M-4S, and M-4D) and the six residential wells, including 1002 Reder Road, 1014 South Arbogast, 1130 Reder Road (Augsten home), 1033 Reder Road, 430 East Avenue H, and 1130 Reder Road (Maze home). Two equipment rinsate blanks collected by Montgomery Watson were also split by BVSPC to ensure that proper decontamination procedures produced clean sampling equipment. As required by the EPA-approved Quality Assurance Project Plan, BVSPC collected two duplicate samples and one MS/MSD sample. Trip blanks accompanied each sample shipment containing samples for volatile organic analysis. Seven trip blanks were shipped. The samples for the organic analyses were shipped to Rollins Environmental Inc., Ann Arbor, Michigan, which was a Contract Laboratory Program lab assigned by EPA Sample Management Office. The samples for inorganic analyses were shipped to EPA Region V Central Regional Laboratory. All samples were designated for low concentration drinking water analyses.

Signature: _____ Date: October 15, 1997

0715 Depart Hotel
0750 Arrive at ACS site
S. McKnight organizing sample containers & paperwork.
0900 Attempt to reach Sheri Bianchin to determine which wells BV/EPA should split. BV assumes all landfill wells that are sampled will be split - by past experience
0915 Mobilize at M-4S (Landfill well) Jeff Ramsby & Mark Pauli is the Montgomery - Watson team - Jeff sets up hydrolab.
This is our MS/MSD sample.
Low-flow purge & sample techniques used.

time	pH	cond	turbid	temp
927	6.26	2070	108	18.3
929	6.25	2120	97	18.7
931	6.26	2150	99.1	19.2

0930 Collect sample MW-4S

Jeff sets up at MW-4D (in same well cluster)
Note: MW-4D will be our duplicate MW-41D

time	temp	pH	cond	turbidity
1003	13.8	7.01	737	112
1005	13.4	7.19	779	147
1007	13.7	7.24	813	147
1009	14.1	7.26	847	133

1010 Collect MW-4D
1100 Get Sheri's voice mail on split samples - she wants us to reserve space to split some residential wells
We plan to sample

Lower Aquif	Upper Aquif	Landfill
MW-8	MW-15	M-1S
MW-23	MW-12	M-3S
MW-51	MW-38	M-4S
MW-10C	MW-29	M-4D

11:15 Mobilize to M-3S, while Steve goes to store for bags, ice, vermiculite, strapping tape - plus other supplies
11:20 Jeff sets up the Hydrolab & Grundfos at 3S

11:25 Begin low-flow purge of m-35

time	pH	temp	Cond	Turbid
1127	6.84	15.4	1142	36
1129	6.82	15.6	1148	24
1131	6.80	16.8	1153	15.2
1133	6.78	17.5	1153	13.9
1135	6.78	17.6	1154	13.0

1140 Collect split sample m-35
11:45 Clean-up
12:00 Set up at M-15 sample
12:10 Start low-flow purge at 15

time	pH	temp	cond.	turbidity
1212	6.60	13.2	2740	59
1214	6.56	13.7	2740	55
1216	6.56	14.0	2730	52

1225 Collect M-35 split sample
14:00 mobilize to mw-06 located within City of Griffith Landfill fenced area near Colfax Road & Rcln Rd

1440 Purge starts at mw-6
1450 Montgomery Watson collects mw-6 — Not in EPA split.
1500-1530 Montgomery Watson collect water level data that could not be done yesterday.
1535 mobilize to mw-15 / near gas pipeline access road / S-side of Landfill area

time	pH	temp	cond.	turbidity
1541	7.05	14.4	4350	51
1543	7.02	14.1	4380	27.7
1545	7.02	14.37	4400	23.0
1547	7.01	14.95	4390	18.8
1549	7.01	15.21	4390	15.9
1551	7.01	15.3	4350	15.4

1555 Collect mw-15
1610 Back at Treatment Bldg.
1620 Collect Trip Blank TB-01
1650 Collect Trip Blank TB-02
1700 Jeff & Mark Collect mw-28
17:45 C. Helm splits EB-01, equipment blank from pump.

0715 Depart Hotel for site
0745 Arrive at ACS site
0800 Montgomery-Watson collect Upper aquifer mw-54 (They had started ~ 7:15)
0820 m-w collect mw-55 the lower aquifer well. This 3-well cluster is Not an epa split location
0905 Mobilize to mw-32, 31, 08 cluster near north RR tracks at Colfax
0945 Parameters stable, mw-32 collected
1005 m-w collects mw-31
1040 Mobilize to mw-8, an epa split.

time	temp	pH	cond	turbidity
1059	11.6	7.79	469	21
1101	11.7	7.81	469	28
1103	11.7	7.81	469	26
1105	12.7	7.81	464	45
1107	13.3	7.81	464	47.2
1109	13.7	7.80	460	45.2

1110 Sample mw-8, an EPA split

m-w mobilize to mw-49, Not an epa split
C. Helm delivers EPA letters & well data to the following residents
THURS 2:00 — 430 E Ave H - Rybicki ✓
Not Thurs 2-4 → 938 Arbogast - Farran ✓
K Thur 12:00 1014 S Arbogast - Babbitt ✓
P miss 1033 Reder - Floyd ✓
RC Thur before 2:00 1130 Reder - Augustein ✓
RE Thur afternoon 1130 Reder - Maze ✓
per EPA instruction from Sheri Bianchin (who dropped the envelopes off this morning)
1340 S. McKracken samples residential surface soil for organic analysis at 1002 Reder Rd.
Fed Ex could not deliver last weeks organic samples requiring re-sampling today
1500 Mobilize to mw-10C, an epa split sample.
Location is north of Treatment building but South of railroad Tracks

(58) C Helm 9-24-97

time	temp	pH	cond	turbidity
306	13.2	7.11	1640	2.50
308	13.5	7.13	1630	2.53
310	13.7	7.14	1620	2.51

Parameters stable ...

1520 Collect at mw-10C, an epa split sample
Notice an odor + sheen.

1550 Collect TB-03 for organics shipment today

1600 Help Steve mark. pack samples, do paperwork, etc.

1700 Help Jeff Rubonsby get van unstuck (in mud at mw-7,36)

1825 Depart site

C Helm

9-25-97 C Helm (59)

0715 Depart Hotel

0745 Arrive at ACS site

0800 Jeff & Mark prepare to sample mw-38 and mw-39. Located north of site.

0830 midwest Renderings on site to install piezometers (replace) that were destroyed

0920 Montgomery Watson collects mw-39

0935 Mobilize to mw-38, an epa split sample

0953 Low-flow purge starts

time	temp	pH	cond	temp
0954	14.7	6.65	455	202
0956	14.8	6.59	459	194
0958	15.4	6.58	459	181
1000	15.9	6.57	459	170

1005 Collect mw-38 epa split

1015 Demob, clean-up

1100 Prepare to mobilize to wetlands for epa split mw-23. Montgomery Watson will also collect mw-46.

time	temp	pH	Conductivity	turbidity
1127	11.6	7.14	785	219
1129	11.5	7.10	795	182
1131	11.8	7.06	807	159
1133	12.7	7.04	827	152
1135	13.3	7.04	829	150

1135 Collect MW-23, EPA split.
1330 Help Steve Mikevicka pack samples & paperwork.
1535 Help M-Watson mobilize to MW-53.
1555 Collect MW-53 (Not split)
Clean-up, demob to the MW-52 location
1625 Collect MW-52 sample (Not an epa split)
1645 Mobilize to MW-24 North of site, S. of Railroad Tracks
1730 MW-24 collected - Not an epa sample.
1820 Depart Site for Hotel
1850 Arrive at Hotel

[signature]

0700 Depart Hotel for site
0740 Arrive at HCS, prepare for today's samples.
925 Collect MW-42, not an epa split sample -
S. Mikevicka and C. [illegible] help Montgomery Watson Get equipment into cornfield.
1015 Collect MW-43, Not an epa split sample - also located in corn field, SE of site.
1300 Get rent-a-car washed - very dirty with site-related dust, mud
1400 Finished for today - Crew will re-mobilize on Monday.

[signature]

(62) 9-29-97 [signature]

0900 Depart Hotel for AES site
0940 Arrive at site, prepare sample containers for today's samples.
Montgomery-Watson crew has just arrived.
First sample to be collected will be mw-11, mw-40
0945 Go to store for this week's supplies
10:30 mobilize to mw-40 east of site, deep in woods
11:10 Collect mw-40 - Not an epa split sample but a duplicate for Mont.-Wat.
11:35 Demob from mw-40
11:40 Set-up on mw-11, not an epa split
12:05 Mont-Watson collects mw-11 located northeast of site but south of railroad tracks.

1930 S. McFadden delivers CRL-lab samples (Inorganics) to Chicago.

9-29-97 [signature] (63)

1525 Sample mw-14 } Not
1550 Sample mw-34 } epa splits
1610 Back to warehouse (Treatment Building) to decon pumps & hose - set bailers
1645 Mobilize to mw-29, mw-4

time	temp	pH	cond	turbidity
1657	12.6	7.19	1025	18
1659	12.5	7.15	1049	20
1701	12.6	7.13	1060	19

Parameters stable,
1710 Collect mw-29, an epa split. This will be EPA duplicate sample.
1720 Help mont - watson set up on mw-4, (Pink due to dye)
1730 Collect mw-4 - Not a split
1800 Visit area residents to schedule the private well sampling on Thur afternoon. Four out of six have appts for Thur. One has connected to City Water - Freeman on 938 Arbogast. Need to sample another one.
1900 Depart Griffith for Hotel.

(64) 9-30-97 C/ Nolan

0730 Depart Hotel
0800 Arrive at ACS site.
Prepare to sample in Farmers Fields
0815 Mobilize to MW-41
Not an EPA split sample
0830 Call Shari Blanchan, EPA, to inform her of progress & That one scheduled private well has "hooked up" to City water and No Longer has the pump in her private well.
Resident of concern is Mrs Farrah, 938 Arbogast
I asked Shari to pick another private well to sample.
9:00 Collect MW-41 (Mont.-Watson).
0950 Shari callsback - try to set own pump in at 938 Arbogast, otherwise, Try Nicola Troll next up as alternate Reder & Colifax, 1002 Reder.
1000 Collect MW-45, Not an EPA split sample in farmers fields.

9-30-97 C/ Nolan (65)

1115 Mobilize to MW-19
1140 start purge at MW-19
After parameter stabilization,
1220 Collect MW-19, Not an epa split
Behind 938 Arbogast Street.
1145 Collect MW-22, Time differs from purge time due to pump difficulties and pre-labeled bottles.
Correct sample time used on all Montgomery Watson paperwork, tags, chain of custodies, etc.

1515 Collect MW-48 - Not an epa split s
North of Railroad Tracks
1610 Confirm 12:30 Thursday appointment at 1002 Reder for Private Well Sample.
1630 Collect MW-18, Not an epa split sample. Located off Reder Road.
1730 MW-44 collected from Farmers Field, southeast of ACS site.

(66) 10-1-97 Cont

0700 Depart Hotel for site
0745 Arrive at ACS
0805 Join Mont-Watsan at MW-21
840 MW-21 sampled
900 Mobilize to MW-12, an epa split sample east of the ACS Facility, North of ACS Railroad spur

time	temp	pH	conduct	turbidity
901	13.3	7.68	394	126
903	13.5	7.39	396	152
905	13.4	7.01	402	143
907	13.4	6.91	410	155

Parameters are stable
915 Sample MW-12
1000 Mobilize to MW-13 located north of Treatment building.
1045 Collect MW-13, Not an epa split sample. We also set up at nearby monitoring well MW-57

10-1-97 Cont (67)

1115 Collect MW-51
Clean-up area, go to treatment building to do paperwork.
1200 Collect EB-02, Rinsate Blank from decontaminated equipment - pump, tubing, etc.
1415 Collect TB-04, TB-05 for today's shipment to the organic lab. Store prepared samples
1415 MW-33, is collected not an epa split.
1450 MW-30, plus mont-watsan MS/MSD sample is sampled after parameters are stable.
1582 Clean decontaminated equipment, mobilize to MW-47 & MW-50
1610 Sample MW-47
1650 Sample MW-50
These are not epa split samples.
1800 Depart site

(68) 10-2-97 C. J. Helm

0800 Depart Hotel for site
0900 Arrive at site after stopping to view flush mount installation - along Colfax East
11:00 Mobilize to Nicole Littrell's Home
11:15 Purge at 5-10 g.p.m for 15 minutes
11:35 Sample RW-05
1002 Reder Rd
Front spigot - No water softener.
11:52 leave Reder Road.
1200 mobilize to RW-01
Babbitt Residence
1014 S Arbogast
10-15 minutes of purge
- then
1220 Collect RW-01.
Go back to Groundwater Treatment building to process samples
1300 mobilize to Augustine Home
1330 Collect RW-04 at 1130 Reder.
He needs an additional copy of last April's results.

10-2-97 C. J. Helm (69)

1330 mobilize to 1033 Reder.
1355 Collect RW-03, Floyd Residence - before softener - Collected over piping - Possible Pb hits cause
1445 Collect RW-06
Rybeck, 430 E. Ave 17
from front-of-house spigot (South side of house)
No one home, but permission was granted 2 days ago.
1515 Collect RW-02
Maze House, 1130 Reder
from Back of House (south side) spigot.

1600-1800 Prepare samples for shipment, Store BV/EPA equipment on 2nd level of Treatment building.
Clean-up, wait for Fed Ex.

C. J. Helm

Letter of Transmittal
BLACK & VEATCH Special Projects Corp.

101 North Wacker Drive, Suite 1100, Chicago, Illinois, 60606, Phone (312) 346-3775, Fax (312) 346-4781

To: Ms. Sheri Bianchin
United States Environmental Protection Agency
77 West Jackson Boulevard (SRW-6J)
Chicago, Illinois 60604

Date: October 22, 1996
From: Steve Mrkvicka
Project: American Chemical Services
Project No.: 71670
File: C.3

We are sending you: [XXX] Attached [ ] Under separate cover via _____

[ ] Preliminary Report
[ ] Final Report
[XXX] Other: Drilling oversight summary report
[ ] Specifications
[ ] Change Order
[ ] Addendum

These items are transmitted:

[ ] As requested
[ ] For your approval
[XXX] For your information
[ ] For review and comment

Remarks: Enclosed is the drilling oversight summary report for the field activities at the ACS site that occurred October 16 through 19, 1996.

If you have any questions, please call me at 312/683-7849.

American Chemical Services
Work Assignment 80-5PJ7

Copy To: P. Hendrixson, USEPA (w/o enclosures); A. Rupani, BVSPC (w/enclosures)
E. Howard, USEPA (w/o enclosures); D. Gountanis, USEPA (w/o enclosures)

Signed: _____ October 22, 1996

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USEPA/ARCS V
BVSPC Weekly Oversight Summary

Reporting Period: October 16 to 19, 1996 Hours Worked: 37
Site Name/Location: ACS, Griffith, IN BVSPC Project No.: 71670
USEPA Work Assignment Manager: Sheri Bianchin
Project Coordinator: Steve Mrkvicka

Personnel Summary Affiliation	No. of Personnel	Responsibility
Cliff Yantz Montgomery Watson Novi, Michigan	1	Field geologist
John and Rich Stearns Drilling Co. Dutton, Michigan	2	Drilling contractor
Steve Mrkvicka Black & Veatch Special Projects Corp. Chicago, Illinois	1	USEPA oversight contractor

Summary of field activities: The purpose for the field activities was to drill and install two Lower Aquifer monitoring wells (MW-37 and MW-38) and one Upper Aquifer piezometer (P-57) at the American Chemical Services, Inc., site. The drilling activities were to follow the USEPA-approved October 15, 1996, revised Lower Aquifer Specific Operating Procedures. MW-37 was to be located among the monitoring well cluster located at MW-10. The MW-37 well screen was to be installed at the top 10 feet of the Lower Aquifer. MW-38 was to be installed downgradient of the private well located at 938 Arbogast, where contaminants had been detected in a groundwater sample. P-57 was to be installed near the entrance to the Lake County Oak Hills Prairie Park.

The drilling crew and field geologist mobilized to the site on Wednesday, October 16, 1996. Following a health and safety briefing, the crew began work at MW-37. Split spoon samples were collected every 2.5 feet from ground surface to the top of the clay layer. The 10-inch diameter steel casing was placed and grouted into the ground. The crew moved to P-57 and installed the piezometer to a depth of 12 feet below land surface into the Upper Aquifer by the end of the day.

On Thursday, October 17, 1996, the crew moved the rig to MW-38 and began split spoon sampling. The confining clay layer was encountered at 30 feet below land surface; however, the crew could not set the casing because they had only brought 20 feet of casing and 12-inch diameter hollow stem augers. The crew called their shop for more supplies and waited until the equipment arrived. The additional equipment arrived, but the weather turned poor with flashes of lightening and rain. The casing was set by the end of the day.

On Friday, October 18, 1996, the crew moved back to MW-37 to drill through the clay layer and set the monitoring well. Some sand heave occurred, but the crew used a sand bailer to remove the blow-in. The well was set to a depth of 30 feet. Type 304 stainless steel well materials were used. A No. 7 Global Materials sand pack was used to 2 feet above the top of the screen. Hole Plug (bentonite chips) were poured to the land surface. A steel locking protective cover was installed at the top of the well. The well was surged and developed by pumping approximately 120 gallons of water from the well. The crew moved to MW-38 and began split spoon sampling through the clay layer. The crew stopped for the day at about 50 feet below land surface, where sand was encountered.

On Saturday, October 19, 1996, the crew continued soil sampling. The Lower Aquifer sand was encountered, and the well was installed to a depth of 61 feet below land surface. The well was installed by the same method used at MW-37. Approximately 150 gallons of water was removed from the well during development.

Problems Encountered/Corrective Actions: No problems were encountered.

Future Work Schedule: The BWES and PGCS construction work will likely not begin until the week of October 28, 1996, due to access to the Kapica-Pazmey building along the southern site boundary. First round of quarterly sampling will begin the first week of November 1996.

Comments: None.

Signature: _____ Date: 10/22/96

t:\projects\acs\fld-rpts\10-16-96

SMcL 10/16/96

0915 Arrive onsite. Meet Ben McGeachy, Montgomery Watson resident engineer and Cliff Yantz, drilling geologist. Wait for drill rig to show up.
Weather: overcast, rain, 60°F

0945 Drillers arrive. Unload rig (looks like CME 750) off of semi-trailer 1-2-3.
Drillers are Stearns Drilling Dutton, Michigan (near Grand Rapids).

1030 Go to construction trailer for safety debrief.

1045 Move rig to MW10 well cluster.

1115 Break for lunch. Cliff looks for a PID from Ben.
Drill rig is CME 859 track mounted rig. Call office.

1215 Back at location.
Driller: John
Helper: Rick

1225 Start split spoon sampling.
MW37 ~~MW38~~ is name

SRM 10/16/96

SMcL 10/16/96

SMcL 10/16/96

Location is about 10' SE of MW30. Drilling is to follow Lower Aquifer SOP dated 10/2/96, which was amended to include blow-in on 10/15/96.

1240 Tag water at about 8' bls.

1255 Clay @ 13' Last spoon @ 11 ppm

1305 Stop to prepare big augers to set steel casing.

1340 Begin drilling with 12" augers.

1400 Begin prepping to set casing. Cut casing to length.

1425 Meet Luann Vanderpool, EPA Rob Lantz who are out to stake alignment of PGCS extraction trench with Pete Vagt, MW. Mixing grout for casing. Casing is 10"

1515 Drillers decon equipment. Casing has been set. Prepare to move rig.

1620 Move rig to P-57. Located adjacent to guard shack into the Lake County Prairie Park east of Colfax and north of RR tracks.

SMcL 10/16/96

SMH 10/16/96

Utilities not cleared. Telephone line looks like only utility servicing the guard shack. Decide to pat P-57 a few feet from building.

1630 Begin split spoon sampling. Water at about 8'. Clay at 12' bls. Clay is sandy.

1715 Begin to set piezometer, 5' screen. Set it from 7' to 12' bls. Sand up to 5' bls. Hole Plug 5' to 1½' bls.

1800 Finish up at piezometer.

SMH 10/16/96

SMH 10/17/96

0715 Arrive at site. Driller locating rig at MW-38. South of Reder Road east of Colfax across from Griffin Public Works near Railroad tie set in ground. Weather: clear about 65°.

0745 Begin split spoon sampling at MW-38.

0820 Water at about 15' bls.

0915 Tag clay @ 30' bls. Begin pulling augers to overdrill with big augers to set casing.

1030 Break for lunch after setting the big augers. Have to wait for additional equipment for drilling deeper. Only have big augers and casing to 20'. Leave for Chicago office.

1330 Return to site.

1345 Supply truck shows up with equipment. Drill with augers.

1515 Drillers begin welding casing to add 10' to 20' piece.

1600 Serious lightening. Break until it passes.

SMH 10/17/96

84

SMuhl 10/17/96

1745 Finish grouting casing. Lightening rain) contractor leave site.

SMuhl 10/17/96

85

SMuhl 10/18/96

0745 Arrive at site. Drillers are fueling rig. Move to MW37.

0830 Begin Split spoon Sampling through the clay. Clay is 5' thick. Sand is showing PID of about 6 ppm at 25' bls. Noticeable odor from well. Weather is sunny, brisk about 45°F.

0855 Some blow-in. Use sand bailer to remove sand & water. About 4" of clay at about 27½' bls. PID at about 2 ppm.

0915 Next spoon shows some silty sand.

1005 Begin setting well. Total depth is 30 feet. Using 10' screen stainless steel.

1050 Placing Hole Plug above sand pack. Sand pack from 30' to 18' bls. Hole plug from 18' to surface. Hydrate above water table every bag. Push steel pro-cover into Hole Plug. Sand poured into pro-cover. Sand is #7 Global Sand Pack.

SMuhl 10/18/96

S Mehl 10/18/96

1130 Finish well, break for lunch.
1230 Back from lunch. Begin to develop well.
1315 Developing well. Will remove 120 gallons after surging for 30 minutes.
1330 Call office check on messages.
1345 Finish developing well MW37.
1400 Rich moves rig to P-57 to place the flush mounted cover. Will move rig to MW38 to place well. Grout had been mixed for 22 hours, Casing had been installed 20 hours.
1630 Split spoon sampling from 30' to 50' bls. Tag sand @ 50 bls.

S Mehl 10/18/96

S Mehl 10/19/96

0715 Arrive at site. Drillers continue split spoon samples at MW38.
0915 Split spoon sample to 61' bls. 2' clay at about 35' bls. Set monitoring well to 61' bls. Place sand pack up to 51' bls. Well has 10' screen and is stainless 304
1130 Broke for lunch.
1245 Return from lunch. Begin filling hole from 50' bls to surface with Hole Plug. Set steel pro cover. Fill outside riser, inside pro cover with sand. Hydrate pellets every 2'.
1330 Begin surging hole and decontaminating the rig.
1400 Begin development by pumping with rig through 1" PVC to drums. Cliff collects pH, cond, temp. readings every 15 gallons. pH readings vary between 4 and 5. After 50 gallons it jumped to about 6.6. Pump had been used to pump cement, which caused the low values. Will pump 150 gallons into drums.
1500 Finish development. I leave site 10/19/96

S Mehl

United States Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

EPA

Superfund Division

Facsimile Cover Sheet
Telephone Number
312-886-4071

To: Greg Overtoom
Office phone:
Machine No: (317) 232-3403

From: Sheri Bianchin
Office phone:
Mail code:

Date: 4-3-97
Number of pages, including cover: 6

Message: Here is the information that I spoke to you about Re: American Chemical

Signature:

TRANSMISSION REPORT

THIS DOCUMENT WAS CONFIRMED
(REDUCED SAMPLE ABOVE - SEE DETAILS BELOW)

** COUNT **
TOTAL PAGES SCANNED : 6
TOTAL PAGES CONFIRMED : 6

*** SEND ***

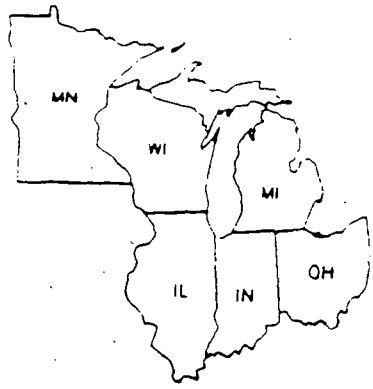
No.	REMOTE STATION	START TIME	DURATION	#PAGES	MODE	RESULTS
1	317 232 3403	4- 3-97 6:00PM	3'32"	6/ 6		COMPLETED 9600

TOTAL 0:03'32" 6

NOTE:
No. : OPERATION NUMBER 48 : 4800BPS SELECTED EC : ERROR CORRECT G2 : G2 COMMUNICATION
PD : POLLED BY REMOTE SF : STORE & FORWARD RI : RELAY INITIATE RS : RELAY STATION
MB : SEND TO MAILBOX PG : POLLING A REMOTE MP : MULTI-POLLING RM : RECEIVE TO MEMORY

United States Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

EPA



Superfund Division

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Signature:

BLACK & VEATCH
SPECIAL PROJECTS CORP.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, (312) 346-3775, Fax: (312) 346-4781

USEPA Region 5
American Chemical Services 80-5PJ7

BVSPC Project 71670
BVSPC File C.3
February 26, 1997

Ms. Sheri Bianchin
U.S. Environmental Protection Agency
77 West Jackson Boulevard (HSR-6J)
Chicago, Illinois 60604

Subject: Results of December 1996 Outfall Surface Water Sample

Dear Ms. Bianchin:

Enclosed is a table that shows the results of the outfall surface water sample that was collected by Black & Veatch Special Projects Corp. at the American Chemical Services, Inc., site on December 27, 1996. We collected the sample, which was not split with Montgomery Watson, at your request. We have not enclosed the laboratory analytical data packages with this transmittal; however, I can send the data packages if you want them.

The results indicated the presence of three organic compounds, including chloroethane (2 ug/L), 2-butanone (0.7 J ug/L), and bis(2-chloroethyl)ether (5 ug/L). Chloroethane and bis(2-chloroethyl)ether are contaminants of concern identified in the Record of Decision for remediation; 2-butanone is a common laboratory contaminant. No volatile organic Tentatively Identified Compounds (TICs) were identified; however, two semivolatile organic TICs were identified. The inorganic results do not indicate the presence of significant levels of inorganic analytes.

Please contact me at 312/346-3775 if you have any questions or desire additional information.

Sincerely,

BLACK & VEATCH SPECIAL PROJECTS CORP.

Steve Mrkvicka
Site Manager

Enclosure
cc: P. Hendrixson, USEPA w/o enclosure
E. Howard, USEPA w/o enclosure
A. Rupani, BVSPC w/enclosure

t:\projects\acs\letters\let29

Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
Volatile Organic Compounds	
Chloromethane	1 U
Bromomethane	1 U
Vinyl chloride	1 U
Chloroethane	**2**
Methylene chloride	2 U
Acetone	5 U
Carbon disulfide	1 U
1,1-Dichloroethene	1 U
1,1-Dichloroethane	1 U
cis-1,2-Dichloroethene	1 U
trans-1,2-Dichloroethene	1 U
Chloroform	1 U
1,2-Dichloroethane	1 U
2-Butanone	**0.7 J**
Bromochloromethane	1 U
1,1,1-trichloroethane	1 U
Carbon tetrachloride	1 U
Bromodichloromethane	1 U
1,2-Dichloropropane	1 U
cis-1,3-dichloropropene	1 U
Trichloroethene	1 U
Dibromochloromethane	1 U
1,1,2-Trichloroethane	1 U
Benzene	1 U
trans-1,3-Dichloropropene	1 U
Bromoform	1 U
4-Methyl-2-pentanone	5 U
2-Hexanone	5 U
Tetrachloroethene	1 U
1,1,2,2-Tetrachloroethane	1 U
1,2-Dibromoethane	1 U
Toluene	1 U
Chlorobenzene	1 U
Ethylbenzene	1 U
Styrene	1 U
Xylene (total)	1 U
1,3-Dichlorobenzene	1 U
1,4-Dichlorobenzene	1 U
1,2-Dichlorobenzene	1 U

Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
1,2-Dibromo-3-chloropropene	1 U
1,2,4-Trichlorobenzene	1 U
VOA TICs	0
Semivolatile Organic Compounds	
Phenol	5 U
bis(2-Chloroethyl)ether	**5**
2-Chlorophenol	5 U
2-Methylphenol	5 U
2,2'-oxybis(1-Chloropropane)	5 U
4-Methylphenol	5 U
N-Nitroso-di-n-propylamine	5 U
Hexachloroethane	5 U
Nitrobenzene	5 U
Isophorone	5 U
2-Nitrophenol	5 U
2,4-Dimethylphenol	5 U
bis(2-Chloroethoxy)methane	5 U
2,4-Dichlorophenol	5 U
1,2,4-Trichlorobenzene	5 U
Naphthalene	5 U
4-Chloroaniline	5 U
Hexachlorobutadiene	5 U
4-Chloro-3-methylphenol	5 U
2-Methylnaphthalene	5 U
Hexachlorocyclopentadiene	5 U
2,4,6-Trichlorophenol	5 U
2,4,5-Trichlorophenol	20 U
2-Chloronaphthalene	5 U
2-Nitroaniline	20 U
Dimethylphthalate	5 U
Acenaphthylene	5 U
2,6-Dinitrotoluene	5 U
3-Nitroaniline	20 U
Acenaphthene	5 U
2,4-Dinitrophenol	20 U
4-Nitrophenol	20 U
Dibenzofuran	5 U
2,4-Dinitrotoluene	5 U
Diethylphthalate	5 U
4-Chlorophenyl-phenylether	5 U

Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
Fluorene	5 U
4-Nitroaniline	20 U
4,6-Dinitro-2-methylphenol	20 U
N-Nitrosodiphenylamine	5 UJ
4-Bromophenyl-phenylether	5 U
Hexachlorobenzene	5 U
Pentachlorophenol	20 U
Phenanthrene	5 U
Anthracene	5 U
Di-n-butylphthalate	5 U
Fluoranthene	5 U
Pyrene	5 U
Butylbenzylphthalate	5 U
3,3'-Dichlorobenzidine	5 U
Benzo(a)anthracene	5 U
Chrysene	5 U
bis(2-Ethylhexyl)phthalate	5 U
Di-n-octylphthalate	5 U
Benzo(b)fluoranthene	5 U
Benzo(k)fluoranthene	5 U
Benzo(a)pyrene	5 U
Indeno(1,2,3-cd)pyrene	5 U
Dibenzo(a,h)anthracene	5 U
Benzo(g,h,i)perylene	5 U
SVOA TICs	2
Pesticides	
Alpha-BHC	0.010 U
Beta-BHC	0.010 U
Delta-BHC	0.010 U
Lindane	0.010 U
Heptachlor	0.010 U
Aldrin	0.010 U
Heptachlor Epoxide	0.010 U
Endosulfan I	0.010 U
Dieldrin	0.020 U
p,p'-DDE	0.020 U
Endrin	0.020 U
Endosulfan II	0.020 U
p,p'-DDD	0.020 U
Endosulfan Sulfate	0.020 U

Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
p,p'-DDT	0.020 U
Methoxychlor	0.10 U
Endrin Ketone	0.020 U
Endrin Aldehyde	0.020 U
Alpha-chlordane	0.010 U
Gamma-chlordane	0.010 U
Toxaphene	1.0 U
PCBs	
Aroclor 1016	0.20 U
Aroclor 1221	0.40 U
Aroclor 1232	0.20 U
Aroclor 1242	0.20 U
Aroclor 1248	0.20 U
Aroclor 1254	0.20 U
Aroclor 1260	0.20 U
Inorganic Analytes	
Aluminum	320
Antimony	1 U
Arsenic	4 U
Barium	118
Beryllium	1 U
Cadmium	0.2 U
Calcium	127,000
Chromium	10 U
Cobalt	6 U
Copper	6 U
Iron	1,060
Lead	2 U
Magnesium	35,500
Manganese	429
Mercury	0.1 U
Nickel	20 U
Potassium	21,100
Selenium	4 U
Silver	6 U
Sodium	36,000
Thallium	2 U
Vanadium	5 U
Zinc	40 U
Cyanide	8 U

BLACK & VEATCH
SPECIAL PROJECTS CORP.

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USEPA Region 5
American Chemical Services 80-5PJ7

BVSPC Project 71670
BVSPC File C.3
February 26, 1997

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1,1-Dichloroethane	1 U
cis-1,2-Dichloroethene	1 U
trans-1,2-Dichloroethene	1 U
Chloroform	1 U
1,2-Dichloroethane	1 U
2-Butanone	**0.7** J
Bromochloromethane	1 U
1,1,1-trichloroethane	1 U
Carbon tetrachloride	1 U
Bromodichloromethane	1 U
1,2-Dichloropropane	1 U
cis-1,3-dichloropropene	1 U
Trichloroethene	1 U
Dibromochloromethane	1 U
1,1,2-Trichloroethane	1 U
Benzene	1 U
trans-1,3-Dichloropropene	1 U
Bromoform	1 U
4-Methyl-2-pentanone	5 U
2-Hexanone	5 U
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2-Methylphenol	5 U
2,2'-oxybis(1-Chloropropane)	5 U
4-Methylphenol	5 U
N-Nitroso-di-n-propylamine	5 U
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Nitrobenzene	5 U
Isophorone	5 U
2-Nitrophenol	5 U
2,4-Dimethylphenol	5 U
bis(2-Chloroethoxy)methane	5 U
2,4-Dichlorophenol	5 U
1,2,4-Trichlorobenzene	5 U
Naphthalene	5 U
4-Chloroaniline	5 U
Hexachlorobutadiene	5 U
4-Chloro-3-methylphenol	5 U
2-Methylnaphthalene	5 U
Hexachlorocyclopentadiene	5 U
2,4,6-Trichlorophenol	5 U
2,4,5-Trichlorophenol	20 U
2-Chloronaphthalene	5 U
2-Nitroaniline	20 U
Dimethylphthalate	5 U
Acenaphthylene	5 U
2,6-Dinitrotoluene	5 U
3-Nitroaniline	20 U
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4-Bromophenyl-phenylether	5 U
Hexachlorobenzene	5 U
Pentachlorophenol	20 U
Phenanthrene	5 U
Anthracene	5 U
Di-n-butylphthalate	5 U
Fluoranthene	5 U
Pyrene	5 U
Butylbenzylphthalate	5 U
3,3'-Dichlorobenzidine	5 U
Benzo(a)anthracene	5 U
Chrysene	5 U
bis(2-Ethylhexyl)phthalate	5 U
Di-n-octylphthalate	5 U
Benzo(b)fluoranthene	5 U
Benzo(k)fluoranthene	5 U
Benzo(a)pyrene	5 U
Indeno(1,2,3-cd)pyrene	5 U
Dibenzo(a,h)anthracene	5 U
Benzo(g,h,i)perylene	5 U
SVOA TICs	2
Pesticides	
Alpha-BHC	0.010 U
Beta-BHC	0.010 U
Delta-BHC	0.010 U
Lindane	0.010 U
Heptachlor	0.010 U
Aldrin	0.010 U
Heptachlor Epoxide	0.010 U
Endosulfan I	0.010 U
Dieldrin	0.020 U
p,p'-DDE	0.020 U
Endrin	0.020 U
Endosulfan II	0.020 U
p,p'-DDD	0.020 U
Endosulfan Sulfate	0.020 U

Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
p,p'-DDT	0.020 U
Methoxychlor	0.10 U
Endrin Ketone	0.020 U
Endrin Aldehyde	0.020 U
Alpha-chlordane	0.010 U
Gamma-chlordane	0.010 U
Toxaphene	1.0 U
PCBs	
Aroclor 1016	0.20 U
Aroclor 1221	0.40 U
Aroclor 1232	0.20 U
Aroclor 1242	0.20 U
Aroclor 1248	0.20 U
Aroclor 1254	0.20 U
Aroclor 1260	0.20 U
Inorganic Analytes	
Aluminum	320
Antimony	1 U
Arsenic	4 U
Barium	118
Beryllium	1 U
Cadmium	0.2 U
Calcium	127,000
Chromium	10 U
Cobalt	6 U
Copper	6 U
Iron	1,060
Lead	2 U
Magnesium	35,500
Manganese	429
Mercury	0.1 U
Nickel	20 U
Potassium	21,100
Selenium	4 U
Silver	6 U
Sodium	36,000
Thallium	2 U
Vanadium	5 U
Zinc	40 U
Cyanide	8 U

BLACK & VEATCH
SPECIAL PROJECTS CORP.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, (312) 346-3775, Fax: (312) 346-4781

USEPA Region 5
American Chemical Services 80-5PJ7

BVSPC Project 71670
BVSPC File C.3
February 26, 1997

Ms. Sheri Bianchin
U.S. Environmental Protection Agency
77 West Jackson Boulevard (HSR-6J)
Chicago, Illinois 60604

Subject: Results of December 1996 Outfall Surface Water Sample

Dear Ms. Bianchin:

Enclosed is a table that shows the results of the outfall surface water sample that was collected by Black & Veatch Special Projects Corp. at the American Chemical Services, Inc., site on December 27, 1996. We collected the sample, which was not split with Montgomery Watson, at your request. We have not enclosed the laboratory analytical data packages with this transmittal; however, I can send the data packages if you want them.

The results indicated the presence of three organic compounds, including chloroethane (2 ug/L), 2-butanone (0.7 J ug/L), and bis(2-chloroethyl)ether (5 ug/L). Chloroethane and bis(2-chloroethyl)ether are contaminants of concern identified in the Record of Decision for remediation; 2-butanone is a common laboratory contaminant. No volatile organic Tentatively Identified Compounds (TICs) were identified; however, two semivolatile organic TICs were identified. The inorganic results do not indicate the presence of significant levels of inorganic analytes.

Please contact me at 312/346-3775 if you have any questions or desire additional information.

Sincerely,

BLACK & VEATCH SPECIAL PROJECTS CORP.

Steve Mrkvicka
Site Manager

Enclosure
cc: P. Hendrixson, USEPA w/o enclosure
E. Howard, USEPA w/o enclosure
A. Rupani, BVSPC w/enclosure

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Table 1 December 1996 Outfall Surface Water Sample American Chemical Services, Inc.	
Compound/Analyte	97ZB02S05 Sample Location/Concentration (µg/l)
p,p'-DDT	0.020 U
Methoxychlor	0.10 U
Endrin Ketone	0.020 U
Endrin Aldehyde	0.020 U
Alpha-chlordane	0.010 U
Gamma-chlordane	0.010 U
Toxaphene	1.0 U
PCBs	
Aroclor 1016	0.20 U
Aroclor 1221	0.40 U
Aroclor 1232	0.20 U
Aroclor 1242	0.20 U
Aroclor 1248	0.20 U
Aroclor 1254	0.20 U
Aroclor 1260	0.20 U
Inorganic Analytes	
Aluminum	320
Antimony	1 U
Arsenic	4 U
Barium	118
Beryllium	1 U
Cadmium	0.2 U
Calcium	127,000
Chromium	10 U
Cobalt	6 U
Copper	6 U
Iron	1,060
Lead	2 U
Magnesium	35,500
Manganese	429
Mercury	0.1 U
Nickel	20 U
Potassium	21,100
Selenium	4 U
Silver	6 U
Sodium	36,000
Thallium	2 U
Vanadium	5 U
Zinc	40 U
Cyanide	8 U

Letter of Transmittal
BLACK & VEATCH Special Projects Corp.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, Phone (312) 346-3775, Fax (312) 346-4781

To: Ms Sheri Bianchin
United States Environmental Protection Agency
77 West Jackson Blvd. (SRW-6J)
Chicago, Illinois 60604

Date: December 3, 1996
From: Ashok Rupani
Project: American Chemical Services
Project No.: 71670
File: C.3

We are sending you: [XX] Attached [ ] Under separate cover via _____

- [ ] Preliminary Report
- [ ] Final Report
- [XX] Other — Oversight Summary Report
- [ ] Specifications
- [ ] Change Order
- [ ] Addendum

These items are transmitted:

- [ ] As requested
- [ ] For your approval
- [XX] For your information
- [ ] For review and comment

Remarks: Enclosed is oversight summary report for the field activities conducted during the period November 18, 1996 through November 21, 1996. During this period, following activities were performed by Montgomery Watson:

- Phase II wetlands sediment sampling;
- Excavation of PCB-containing soils along the PGCS trench alignment; and
- Installation of natural gas line to the treatment building;

If you have any questions, please call me at 312/683-7822.

American Chemical Services
Work Assignment 80-5PJ7

Copy To: P. Hendrixson, USEPA (w/o enclosures)
E. Howard, USEPA (w/o enclosures)
Steve Mrkvicka, BVSPC (w/enclosures)

Signed: Ashok Rupani 12/3/96

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 1
Date: 02-06-97 Time: 1010
Photographer: Ashok Rupani
Description: Facing south. HTI conducting pre-excavation/benching activities along the western leg of the barrier wall alignment in the Off-site Containment Area (OFCA).

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo#: 2
Date: 02-06-97 Time: 1020
Photographer: Ashok Rupani
Description: Facing south. HTI conducting pre-excavation/benching activities along the western leg of the barrier wall alignment in the OFCA. Buried drums were encountered in this area.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 3
Date: 02-07-97 Time: 1445
Photographer: Ashok Rupani
Description: Facing north-east. HTI conducting pre-excavation/benching activities along the western leg of the barrier wall alignment in the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 4
Date: 02-09-97 Time: 1345
Photographer: Ashok Rupani
Description: Facing south-west. HTI completes pre-excavation/benching activities along a section of the western leg of the barrier wall alignment in the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 5
Date: 02-09-97 Time: 1345
Photographer: Ashok Rupani
Description: Facing north-west. HTI conducting pre-excavation/benching activities along the western leg of the barrier wall alignment in the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 6
Date: 02-10-97 Time: 0945
Photographer: Ashok Rupani
Description: Facing south-west. HTI conducting pre-excavation/benching activities along the western leg of the barrier wall alignment in the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 7
Date: 02-14-97 Time: 1420
Photographer: Ashok Rupani
Description: Facing south. HTI conducting pre-excavation/benching activities along the western leg of the barrier wall alignment in the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 8
Date: 02-19-97 Time: 1615
Photographer: Ashok Rupani
Description: Facing north. HTI conducting pre-excavation/benching activities along the alignment of extraction trench #13. During these activities, HTI accidently damaged barrier wall conveyance piping installed by Youngs.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 9
Date: 02-14-97 Time: 1330
Photographer: Ashok Rupani
Description: Facing south-west. During pre-excavation/benching activities along the southern leg of the barrier wall alignment, HTI uncovered several buried drums.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 10
Date: 02-27-97 Time: 1005
Photographer: Ashok Rupani
Description: Facing north-west. Drums shown in Photo #9 were temporarily covered with plastic.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 11
Date: 02-14-97 Time: 1420
Photographer: Ashok Rupani
Description: Facing west. HTI conducting pre-excavation/benching activities along the southern leg of the barrier wall alignment. Excavated municipal waste/debris and soils were handled in accordance with the approved Spoils Management Plan.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 12
Date: 02-17-97 Time: 1535
Photographer: Ashok Rupani
Description: Facing north-west. HTI conducting pre-excavation/benching activities along the southern leg of the barrier wall alignment. Excavated municipal waste/debris and soils were handled in accordance with the approved Spoils Management Plan.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 13
Date: 02-15-97 Time: 0845
Photographer: Ashok Rupani
Description: Facing west. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 14
Date: 02-15-97 Time: 0845
Photographer: Ashok Rupani
Description: Facing south-west. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 15
Date: 02-15-97 Time: 0845
Photographer: Ashok Rupani
Description: Facing south. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 16
Date: 02-15-97 Time: 0845
Photographer: Ashok Rupani
Description: Facing south. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 17
Date: 02-15-97 Time: 0845
Photographer: Ashok Rupani
Description: Facing south-west. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 18
Date: 02-15-97 Time: 1024
Photographer: Ashok Rupani
Description: Facing south-west. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 19
Date: 02-15-97 Time: 1024
Photographer: Ashok Rupani
Description: Facing west. The Kapica-Pazmey building located at south-east corner of the OFCA being demolished by Midwest Material Services of Hammond, Indiana.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 20
Date: 02-15-97 Time: 1150
Photographer: Ashok Rupani
Description: Facing south-west. Midwest Material Services of Hammond, Indiana, completes demolition of the Kapica-Pazmey building located at south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 21
Date: 02-17-97 Time: 1520
Photographer: Ashok Rupani
Description: Facing west. An abandoned concrete septic tank was encountered during pre-excavation/benching activities underneath the former Kapica-Pazmey building located at south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 22
Date: 02-17-97 Time: 1520
Photographer: Ashok Rupani
Description: Facing west. An abandoned concrete septic tank was encountered during pre-excavation/benching activities underneath the former Kapica-Pazmey building located at south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 23
Date: 02-17-97 Time: 1535
Photographer: Ashok Rupani
Description: Facing east. HTI completes pre-excavation/benching activities in the south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 24
Date: 03-19-97 Time: 0940
Photographer: Ashok Rupani
Description: Facing south-west. Midwest Material Services of Hammond, Indiana, conducting pre-trenching activities along barrier wall alignment in the south-west region of the On-site Containment Area (ONCA).

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 25
Date: 03-19-97 Time: 1000
Photographer: Ashok Rupani
Description: Facing south-west. Some waste materials/debris were encountered during pre-trenching activities along barrier wall alignment in the south-west region of the ONCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 26
Date: 03-19-97 Time: 1030
Photographer: Ashok Rupani
Description: Facing north-west. Some waste materials/debris were encountered during pre-trenching activities along barrier wall alignment in the south-west region of the ONCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 27
Date: 03-19-97 Time: 1220
Photographer: Ashok Rupani
Description: Facing north-west. Some waste materials/debris were encountered during pre-trenching activities along barrier wall alignment in the south-west region of the ONCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 28
Date: 03-19-97 Time: 1240
Photographer: Ashok Rupani
Description: Facing south-east. Some waste materials/debris were encountered during pre-trenching activities along barrier wall alignment in the south-west region of the ONCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 29
Date: 03-19-97 Time: 1320
Photographer: Ashok Rupani
Description: Facing north-west. Some waste materials/debris and crushed drums were encountered during pre-trenching activities along barrier wall alignment in the south-west region of the ONCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 30
Date: 03-26-97 Time: 1415
Photographer: Ashok Rupani
Description: Facing north. HTI conducting pre-excavation activities along the alignment of extraction trench #10.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 31
Date: 03-26-97 Time: 1415
Photographer: Ashok Rupani
Description: Facing north-west. HTI conducting pre-excavation activities along the alignment of extraction trench #10. Excavated waste/debris was handled in accordance with the approved Spoils Management Plan.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 32
Date: 03-26-97 Time: 1415
Photographer: Ashok Rupani
Description: Facing west. HTI conducting pre-excavation activities along the alignment of extraction trench #10. Excavated waste/debris was handled in accordance with the approved Spoils Management Plan.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 33
Date: 02-06-97 Time: 0930
Photographer: Ashok Rupani
Description: Facing north-west. HTI installing barrier wall in the north-west region of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 34
Date: 02-06-97 Time: 0930
Photographer: Ashok Rupani
Description: Facing south-west. HTI installing barrier wall in the north-west region of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 35
Date: 02-06-97 Time: 0955
Photographer: Ashok Rupani
Description: Facing west. HTI installing barrier wall in the north-west region of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 36
Date: 02-10-97 Time: 1445
Photographer: Ashok Rupani
Description: Facing south-east. HTI installing barrier wall in the north-west region of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 37
Date: 02-19-97 Time: 1530
Photographer: Ashok Rupani
Description: Facing south. After failing to make the first joint, HTI resumes barrier wall installation with a new panel beginning at a location few feet south of the first panel.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 38
Date: 02-19-97 Time: 1530
Photographer: Ashok Rupani
Description: Facing south-east. After failing to make the first joint, HTI resumes barrier wall installation with a new panel beginning at a location few feet south of the first panel.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 39
Date: 02-19-97 Time: 1530
Photographer: Ashok Rupani
Description: Facing south-east. After failing to make the first joint, HTI resumes barrier wall installation with a new panel beginning at a location few feet south of the first panel.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 40
Date: 02-27-97 Time: 1010
Photographer: Ashok Rupani
Description: Facing north-west. HTI installing barrier wall along the western leg of the alignment in the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 41
Date: 02-27-97 Time: 1035
Photographer: Ashok Rupani
Description: Facing south-west. HTI installing barrier wall along the western leg of the alignment in the OFCA. Dry bentonite is being fed into the trenching machine via a hopper located at the back of the machine.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 42
Date: 02-27-97 Time: 1415
Photographer: Ashok Rupani
Description: Facing west. HTI making a joint during barrier wall installation along the western leg of the alignment in the OFCA.

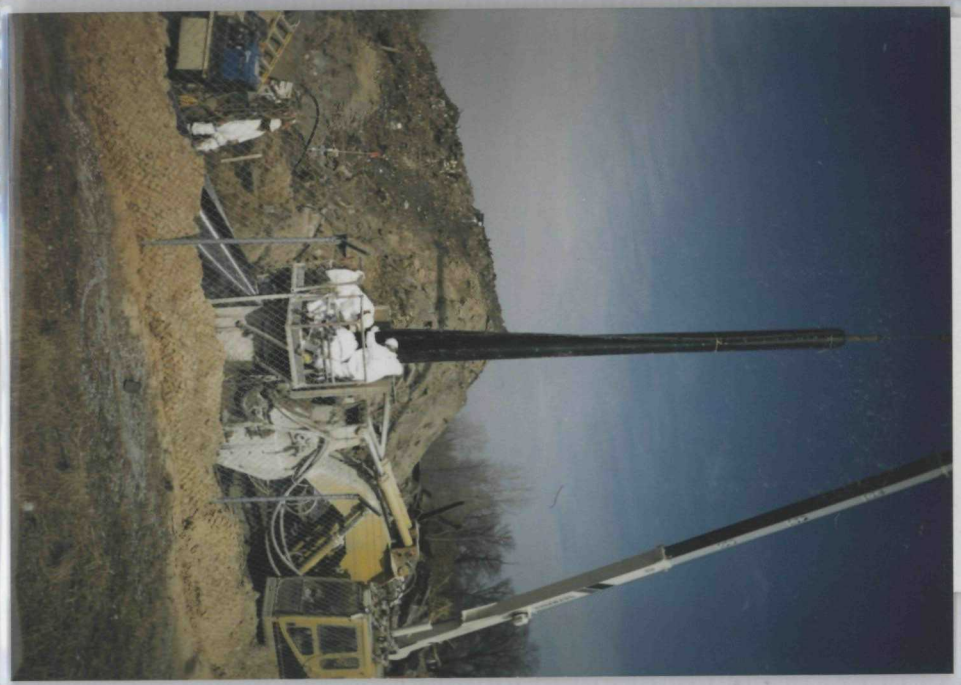
Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 43
Date: 02-27-97 Time: 1415
Photographer: Ashok Rupani
Description: Facing south. HTI trying to resolve problems encountered while making the barrier wall joint.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 44
Date: 02-28-97 Time: 1020
Photographer: Ashok Rupani
Description: Facing south-west. A typical barrier wall joint. Variation in upper clay layer elevations along the barrier wall alignment is reflected in the difference in height of the two wall panels.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 45
Date: 02-27-97 Time: 0955
Photographer: Ashok Rupani
Description: Facing south. Stormwater collected in the pre-excavated/benched areas of barrier wall alignment in the OFCA.

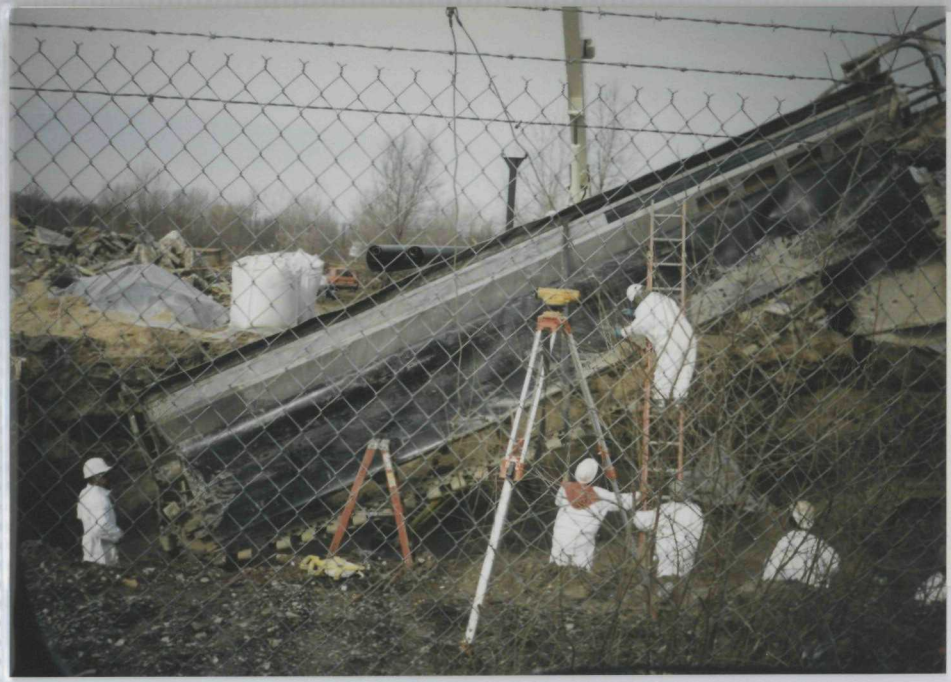
Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 46
Date: 02-27-97 Time: 0955
Photographer: Ashok Rupani
Description: Facing south-west. Stormwater collected in the pre-excavated/benched areas of barrier wall alignment in the OFCA being pumped to surrounding areas just east of the barrier wall alignment.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 47
Date: 03-03-97 Time: 1030
Photographer: Ashok Rupani
Description: Facing north-west. Barrier wall installed in the south-west region of the OFCA.



Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 48
Date: 03-03-97 Time: 1330
Photographer: Ashok Rupani
Description: Facing north-east. HTI making a joint during barrier wall installation along the southern leg of the alignment.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 49
Date: 03-03-97 Time: 1550
Photographer: Ashok Rupani
Description: Facing north. A barrier wall joint pulled apart during installation along the southern leg of the alignment.



Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 50
Date: 03-04-97 Time: 1330
Photographer: Ashok Rupani
Description: Facing north. HTI repairing the installation boot of the trenching machine after a joint pulled apart during installation along the southern leg of the alignment.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 51
Date: 03-10-97 Time: 1030
Photographer: Ashok Rupani
Description: Facing north-east. HTI resumesd barrier wall installation with a new panel beginning at a location few feet east of the last panel after a joint pulled apart during installation along the southern leg of the alignment

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 52
Date: 03-10-97 Time: 1350
Photographer: Ashok Rupani
Description: Facing north-east. HTI installing barrier wall along the southern leg of the alignment.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 53
Date: 03-11-97 Time: 1045
Photographer: Ashok Rupani
Description: Facing north-east. HTI installing barrier wall near the south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 54
Date: 03-11-97 Time: 1530
Photographer: Ashok Rupani
Description: Facing west. HTI installing barrier wall near the south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 55
Date: 03-12-97 Time: 1120
Photographer: Ashok Rupani
Description: Facing south-west. Montgomery-Watson personnel conducting perimeter air monitoring during barrier wall installation activities near the south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 56
Date: 03-21-97 Time: 1130
Photographer: Ashok Rupani
Description: Facing west. HTI repairing the installation boot and cutting chain of the trenching machine after cobbles and boulders, encountered during barrier wall installation near the south-east corner of the OFCA, damaged the installation boot and the cutting chain of the machine.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 57
Date: 03-21-97 Time: 1130
Photographer: Ashok Rupani
Description: Facing west. HTI repairing the installation boot and cutting chain of the trenching machine after cobbles and boulders, encountered during barrier wall installation near the south-east corner of the OFCA, damaged the installation boot and the cutting chain of the machine.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 58
Date: 03-25-97 Time: 1735
Photographer: Ashok Rupani
Description: Facing west. After repairing the installation boot and the cutting chain of the trenching machine, HTI resumes barrier wall installation near the south-east corner of the OFCA.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 59
Date: 03-26-97 Time: 1050
Photographer: Ashok Rupani
Description: Facing north-west. HTI installing barrier wall along the eastern leg of the alignment.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 60
Date: 03-26-97 Time: 1135
Photographer: Ashok Rupani
Description: Facing west. HTI resumes barrier wall installation near the south-east corner of the OFCA with a new panel beginning at a location few feet north of the last panel.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 61
Date: 03-26-97 Time: 1630
Photographer: Ashok Rupani
Description: Facing north-west. HTI installing barrier wall along the eastern leg of the alignment.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 62
Date: 02-07-97 Time: 1000
Photographer: Ashok Rupani
Description: Facing north-east. HTI setting up to install extraction trench #11.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 63
Date: 02-09-97 Time: 1330
Photographer: Ashok Rupani
Description: Facing south-west. HTI completes the installation of extraction trench #11. The extraction trench culminated with a 15-foot long, solid, 6-inch corrugated HDPE pipe that will serve as an access port at the non-pumping end of the trench.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 64
Date: 02-09-97 Time: 1330
Photographer: Ashok Rupani
Description: Facing north-west. HTI cleaning up the area after installation of extraction trench #11.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 65
Date: 03-25-97 Time: 1730
Photographer: Ashok Rupani
Description: Facing north-west. HTI repairing the installation boot and cutting chain of the trenching machine after cobbles and boulders, encountered during barrier wall installation along the eastern leg of the alignment, damaged the installation boot and the cutting chain of the machine.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 66
Date: 03-25-97 Time: 1640
Photographer: Ashok Rupani
Description: Facing south-west. HTI installing extraction trench #15.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 67
Date: 03-25-97 Time: 1720
Photographer: Ashok Rupani
Description: Facing west. HTI installing extraction trench #15.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 68
Date: 03-25-97 Time: 0810
Photographer: Ashok Rupani
Description: Facing west. HTI installing extraction trench #16.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 69
Date: 03-25-97 Time: 0850
Photographer: Ashok Rupani
Description: Facing south. HTI completes the installation of extraction trench #16.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 70
Date: 03-27-97 Time: 1010
Photographer: Ashok Rupani
Description: Facing west. HTI setting up to install extraction trench #18 inside the ACS facility.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 71
Date: 03-27-97 Time: 1225
Photographer: Ashok Rupani
Description: Facing north-west. HTI installing extraction trench #18.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 72
Date: 03-27-97 Time: 1255
Photographer: Ashok Rupani
Description: Facing south-east. HTI installing extraction trench #18.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 73
Date: 03-26-97 Time: 1725
Photographer: Ashok Rupani
Description: Facing south-west. HTI setting up to install extraction trench #10 inside the ACS facility.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 74
Date: 03-26-97 Time: 1820
Photographer: Ashok Rupani
Description: Facing east. HTI installing extraction trench #10.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 75
Date: 03-21-97 Time: 1000
Photographer: Ashok Rupani
Description: Facing north. HTI installing extraction trench #13.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 76
Date: 02-17-97 Time: 1612
Photographer: Ashok Rupani
Description: Facing north. The three manholes for the effluent discharge system were delivered to the site pre-assembled.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 77
Date: 02-18-97 Time: 1045
Photographer: Ashok Rupani
Description: Facing south-east. Youngs installing the manhole for the northern leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 78
Date: 02-18-97 Time: 1335
Photographer: Ashok Rupani
Description: Facing south-east. Youngs installing a 4-inch high density polyethylene (HDPE) pipe for the northern leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 79
Date: 02-18-97 Time: 1405
Photographer: Ashok Rupani
Description: Facing north-east. Youngs fusing the HDPE pipe together after the pipe was snapped by the excavator.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 80
Date: 02-18-97 Time: 1455
Photographer: Ashok Rupani
Description: Facing south-east. Youngs completes the installation of the northern leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 81
Date: 02-19-97 Time: 0900
Photographer: Ashok Rupani
Description: Facing east. Youngs completes the installation of the central leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 82
Date: 02-18-97 Time: 0900
Photographer: Ashok Rupani
Description: Facing east. Youngs completes the installation of the central leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 83
Date: 02-19-97 Time: 1035
Photographer: Ashok Rupani
Description: Facing north-east. Youngs checking elevation of the excavation before setting the manhole for the southern leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 84
Date: 02-19-97 Time: 1058
Photographer: Ashok Rupani
Description: Facing north-east. Youngs setting the manhole for the southern leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 85
Date: 02-19-97 Time: 1115
Photographer: Ashok Rupani
Description: Facing south-east. Youngs installing a 4-inch HDPE pipe for the southern leg of the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 86
Date: 02-24-97 Time: 1400
Photographer: Ashok Rupani
Description: Facing north-west. Youngs connecting the PGCS conveyance piping to the northern PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 87
Date: 02-24-97 Time: 1435
Photographer: Ashok Rupani
Description: Facing north-west. Youngs pumping groundwater from the northern PGCS sump to temporarily create dry conditions around the sump. The dry conditions facilitated the pipe installation activities.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 88
Date: 03-04-97 Time: 0900
Photographer: Ashok Rupani
Description: Facing north-west. HTI installing well cap at the northern PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 89
Date: 02-24-97 Time: 1505
Photographer: Ashok Rupani
Description: Facing north-west. Youngs conducting electrical work at the northern PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 90
Date: 02-24-97 Time: 1515
Photographer: Ashok Rupani
Description: Facing west. Youngs connecting the PGCS conveyance piping to the central PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 91
Date: 02-24-97 Time: 1545
Photographer: Ashok Rupani
Description: Facing south. Youngs connecting the PGCS conveyance piping to the southern PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 92
Date: 02-25-97 Time: 1035
Photographer: Ashok Rupani
Description: Facing east. Youngs excavating around the central PGCS sump in order to repair the sump. The damage had occurred earlier when Youngs was trying to hook up the PGCS conveyance piping to the sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 93
Date: 02-25-97 Time: 1050
Photographer: Ashok Rupani
Description: Facing east. In order to facilitate repair work described in Photo #92, Youngs used a Vac Truck (seen in background) to de-water the area. The groundwater pumped during this operation was temporarily stored in the Baker storage tanks.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 94
Date: 02-25-97 Time: 1110
Photographer: Ashok Rupani
Description: Facing west. De-watering and repair activities at the central PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 95
Date: 03-18-97 Time: 1110
Photographer: Ashok Rupani
Description: Facing east. Youngs completes the repair work at the central PGCS sump with HTI's help.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 96
Date: 03-04-97 Time: 1410
Photographer: Ashok Rupani
Description: Facing south. HTI completes the installation of well cap at the northern PGCS sump.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 97
Date: 02-25-97 Time: 1345
Photographer: Ashok Rupani
Description: Facing north-west. Youngs de-watering the area around the southern PGCS sump in order to facilitate conveyance piping hook-up.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 2 Photo #: 98
Date: 02-17-97 Time: 1125
Photographer: Ashok Rupani
Description: Facing north. The concrete valve vault for the effluent discharge system.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 99
Date: 03-03-97 Time: 1400
Photographer: Ashok Rupani
Description: Facing north. Youngs attempting to lift the concrete valve vault with the help of two back-hoes.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 100
Date: 03-04-97 Time: 0945
Photographer: Ashok Rupani
Description: Facing north-west. Youngs installing steel sheeting to facilitate valve vault placement under extremely muddy conditions.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 101
Date: 03-04-97 Time: 0945
Photographer: Ashok Rupani
Description: Facing north-east. Youngs installing steel sheeting to facilitate valve vault placement under extremely muddy conditions.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 102
Date: 03-11-97 Time: 1610
Photographer: Ashok Rupani
Description: Facing west. Youngs extending the pipes from the three discharge lines further east. The three pipes were extended in two separate trenches.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 103
Date: 03-12-97 Time: 0940
Photographer: Ashok Rupani
Description: Facing west. Youngs extending the pipes from the three discharge lines further east. The three pipes were extended in two separate trenches.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 104
Date: 03-12-97 Time: 1140
Photographer: Ashok Rupani
Description: Facing north-east. After the three discharge lines were extended further east to the proposed valve assembly location, Youngs begins to excavate to install the valve assembly.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 105
Date: 03-13-97 Time: 1140
Photographer: Ashok Rupani
Description: Facing south-west. Youngs hooking up the valves to the effluent discharge pipes.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 106
Date: 03-13-97 Time: 1345
Photographer: Ashok Rupani
Description: Facing north-west. Youngs hooking up the valves to the effluent discharge pipes.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 107
Date: 03-13-97 Time: 1550
Photographer: Ashok Rupani
Description: Facing north-west. Youngs installing the valve assembly.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 108
Date: 03-13-97 Time: 1550
Photographer: Ashok Rupani
Description: Facing north-west. Youngs installing the valve assembly.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 109
Date: 03-18-97 Time: 1230
Photographer: Ashok Rupani
Description: Facing south-west. Youngs completes the valve assembly installation. The excavation was backfilled with native soils and gravel.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 110
Date: 02-06-97 Time: 1425
Photographer: Ashok Rupani
Description: Facing south-east. Montgomery-Watson encountered a production well just a few feet north of the Kapica-Pazmey building. This well was designated as K-P Well.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 111
Date: 02-07-97 Time: 1305
Photographer: Ashok Rupani
Description: Facing west. Stearns Drilling Company (Stearns) of Grand Rapids, Michigan, pulling out the pumping system prior to abandoning the K-P Well.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 112
Date: 02-07-97 Time: 1305
Photographer: Ashok Rupani
Description: Facing west. The pumping system in the K-P Well consisted of an inflow and an outflow pipe attached to a PVC header.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 113
Date: 02-07-97 Time: 1425
Photographer: Ashok Rupani
Description: Facing west. Stearns abandoning the K-P Well by overdrilling with an 81/4-inch hollow-stemmed augers.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 114
Date: 02-09-97 Time: 1250
Photographer: Ashok Rupani
Description: Facing west. Stearns using mud rotary method to drill inside the 6-inch outer casing.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 115
Date: 02-10-97 Time: 0935
Photographer: *Ashok Rupani*
Description: Facing west. Stearns completes the abandonment of the K-P Well.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 116
Date: 03-24-97 Time: 1100
Photographer: Ashok Rupani
Description: Facing north-east. Montgomery-Watson personnel taking water level measurement at monitoring well ATMW-4D.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 117
Date: 03-24-97 Time: 1440
Photographer: Ashok Rupani
Description: Facing north-west. Montgomery-Watson personnel taking water level measurement at landfill well M-1S.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 118
Date: 03-24-97 Time: 1450
Photographer: Ashok Rupani
Description: Facing north-east. Montgomery-Watson personnel taking water level measurement at landfill well M-4S.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 119
Date: 03-24-97 Time: 1450
Photographer: Ashok Rupani
Description: Facing north-east. Monitoring Well MW-35 was found to be damaged.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 120
Date: 03-24-97 Time: 1505
Photographer: Ashok Rupani
Description: Facing west. Montgomery-Watson personnel taking water level measurements at landfill wells M-5S and M-5D.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 121
Date: 03-24-97 Time: 1520
Photographer: Ashok Rupani
Description: Facing north-west. Montgomery-Watson personnel taking water level measurement at landfill well M-3S. Both M-3S and M-3D were found to be submerged in water.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 122
Date: 03-24-97 Time: 1530
Photographer: Ashok Rupani
Description: Facing west. Montgomery-Watson personnel taking water level measurement at landfill well M-2S.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 123
Date: 03-27-97 Time: 0825
Photographer: Ashok Rupani
Description: Facing north-west. Montgomery-Watson personnel sampling groundwater at landfill wells M-1S and M-1D.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 5 Photo #: 124
Date: 03-28-97 Time: 1010
Photographer: Ashok Rupani
Description: Facing north-east. Montgomery-Watson personnel sampling groundwater at monitoring well MW-6.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 125
Date: 02-11-97 Time: 0930
Photographer: Ashok Rupani
Description: Facing south. Montgomery-Watson personnel taking samples for head space analysis from the soil pile which was generated during barrier wall conveyance piping installation activities inside the ACS facility.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 1 Photo #: 126
Date: 02-14-97 Time: 1300
Photographer: Ashok Rupani
Description: Facing north-east. During barrier wall installation activities in the OFCA, HTI built a 'decon pad' just inside the exclusion zone. The 'decon pad' was built using the 'Colfax sand'.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 127
Date: 03-03-97 Time: 1030
Photographer: Ashok Rupani
Description: Facing north. Buried Waste Spoils Management Area (left) and Demolition Rubble Management Area (right) were established in accordance with the approved Spoils Management Plan.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 128
Date: 03-04-97 Time: 0900
Photographer: Ashok Rupani
Description: Facing south. Bowen Engineering Company setting up to sterilize the hydrogen peroxide tank and the associated piping. Used nitric acid was stored in the black storage tank shown in the photo.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 129
Date: 03-10-97 Time: 1010
Photographer: Ashok Rupani
Description: Facing west. Construction de-watering water was first run through a mobile carbon adsorption unit by HTI prior to sampling and subsequent disposal.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 3 Photo #: 130
Date: 03-13-97 Time: 1540
Photographer: Ashok Rupani
Description: Facing east. The treated site water was temporarily stored in 20,000-gallon Baker Tanks.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 131
Date: 03-21-97 Time: 1315
Photographer: Ashok Rupani
Description: Facing south. Midwest Material Services of Hammond, Indiana, constructed drainage ditches in the area surrounding the treatment building.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 132
Date: 03-21-97 Time: 1315
Photographer: Ashok Rupani
Description: Facing south. Midwest Material Services of Hammond, Indiana, constructed drainage ditches in the area surrounding the treatment building.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 133
Date: 03-24-97 Time: 1030
Photographer: Ashok Rupani
Description: Facing south. Midwest Material Services of Hammond, Indiana, constructed drainage ditches in the area surrounding the treatment building. A culvert pipe was also installed just outside the ACS gate across the site trailer.

Site: American Chemical Services, Inc. RD/ERA
Proj. #: 71670.600
Roll: 4 Photo #: 134
Date: 03-21-97 Time: 1335
Photographer: Ashok Rupani
Description: Facing south-west. Youngs completes the installation of safety guards around the septic tank.